Medical Library
JUN 17 1925

The

British Medical Journal

THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION.

Including an Epitome of Current Medical Literature.

WITH SUPPLEMENT.

No. 3361. SATURDAY, MAY 30, 1925. Price 1/3

BARCLAYS BANK
LIMITED
Head Office: 54, LOMBARD STREET, LONDON, E.C. 3.
Chairman—FREDERICK CRAUFURD GOODENOUGH.
Deputy-Chairman—SIR HERBERT HAMBLING, Bart. *Vice-Chairman*—EDMUND HENRY PARKER.

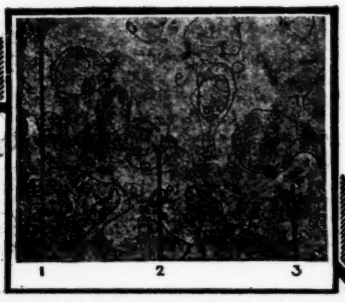
AUTHORISED CAPITAL	£20,000,000
ISSUED AND PAID-UP CAPITAL	£15,592,372
RESERVE FUND	£8,250,000
DEPOSITS (31st December, 1924)	£301,026,825

The Bank has over 1,780 Branches in England and Wales.
EXECUTORSHIPS AND TRUSTEESHIPS UNDERTAKEN.

HAY FEVER
A new and successful method of prophylaxis and treatment with
ELBON "CIBA"
(Cinnamolyl-p-oxyphenylurea)
TABLETS 7¾ GRAINS.

FULL PARTICULARS AND REPORTS TO PHYSICIANS ON REQUEST.
THE CLAYTON ANILINE COMPANY, LIMITED,
Pharmaceutical Department, 68½, UPPER THAMES STREET, LONDON, E.C.4.

Micro-photograph of stool after Petrolagar administration, showing complete emulsification and thorough admixture with intestinal content.
[1] Epithelial Cells [2] Microscopic Oil Globule [3] Agar-Agar Granule [4] Fæces



Micro-photograph of fæces after administration of plain mineral oil, showing complete absence of emulsification: this explains why mineral oil always leaks.
[1] Epithelial Cells [2] Oil Globule [3] Fæces

Petrolagar

(trade mark)

SUPERSEDING LIQUID PARAFFIN IN CHRONIC CONSTIPATION

THE MICRO-PHOTOGRAPHS clearly demonstrate the superiority of Petrolagar over ordinary liquid paraffin in the treatment of constipation. On the left the perfect admixture with the intestinal content obtained with Petrolagar is apparent: the other photograph, in which large unemulsified globules of oil are present, explains at a glance why plain mineral oil never has solved and never can solve the problem of constipation. It also shows why mineral oil leaks.

The drawbacks inseparable from the use of plain liquid medicinal paraffin are well known. Many patients cannot tolerate its insipidity; digestive disturbances sometimes occur; whilst thorough admixture with the intestinal content is seldom attained, with consequent leakage from the rectum.

These difficulties are overcome in Petrolagar, which contains 65% of pure medicinal liquid paraffin with 10% of prepared agar-agar in the form of a highly stable and extremely palatable emulsion. There is no taste of oil, so that the most fastidious patients take the product readily. In the treatment of chronic constipation, Petrolagar gives results unobtainable by any other method and breaks the vicious circle set up by the habitual use of drastic purgatives. The medicinal paraffin is so finely divided that it is thoroughly disseminated throughout the fæcal mass and *cannot leak*; the agar-agar is specially prepared so as to yield on incubation in the intestinal tract many times its original bulk, forming a bland gelatinous mass which is completely and readily eliminated, acting, indeed, as a soothing emollient to the inflamed intestinal mucosa.

As contrasted with cathartics, Petrolagar is non-habit forming, and once normal elimination has been restored may be given in diminishing quantity.

PETROLAGAR is available in four forms: PETROLAGAR *Plain* PETROLAGAR *Alkaline* PETROLAGAR *Phenolphthalein* PETROLAGAR *Unsweetened.*

Clinical Trial samples will be sent on request

DESHELL LABORATORIES LIMITED: *Sole Manufacturers*
PREMIER HOUSE, 150 SOUTHAMPTON ROW, KINGSWAY, LONDON, W.C. 1

An Address
ON
FASHIONS AND FADS IN MEDICINE.*

BY
ROBERT HUTCHISON, M.D., F.R.C.P.,
PHYSICIAN TO THE LONDON HOSPITAL.

I REMEMBER being present many years ago in a provincial town, at the annual gathering of the British Medical Association, and at the general meeting of representatives happened to occupy a front seat in the gallery next to an old friend, a distinguished gynaecologist, since dead. After gazing down in silence for some time at the assemblage below he turned round to me and exclaimed in a tragical whisper, "*The medical profession in bulk is indeed a saddening spectacle!*"

Well, gentlemen, I do not know that in our exterior habit we present a more "saddening spectacle" than any other collection of human beings, but undoubtedly there are some of our intellectual habits which are calculated to make the judicious grieve, and chief amongst these is our subservience to fashions. For let there be no mistake about it, there *is* a fashion in the cut of the robe of Aesculapius just as much as in that of more mundane garments, and few of us altogether escape its influence.

This, of course, is no new observation. A certain Dr. Harris,† for example, writing as long ago as the middle of the eighteenth century, delivered himself upon the subject as follows: "For some different modes and customs, sometimes perhaps better, sometimes worse, come into Fashion and go out again in Physick as well as Dress; and the common Herd of Physicians too easily give credit to the Promises of new Leaders, till that faithful Mistress Experience at last shows them safer ways to Truth."

So apparently we are no worse than our predecessors after all. I thought, however, that it might be worth our while to consider together the origin of fashions and fads in medicine, and their influence for good and evil on our work, and that will be the subject of this address.

The Nature of Fashions.

At the outset of our inquiry we are met by the difficulty, What is meant by a "fashion"? It is not always easy to say, but I think one may regard transience as being fashion's essential characteristic. Take, for instance, the matter of hats and hearts. It would not be correct to say that it is the fashion for women to wear hats in England, for I suppose women have worn hats here ever since the Stone Age. On the other hand, it would be quite exact to speak of its being now the fashion to wear what I believe are called *cloche* hats. So in the case of hearts. It would not be accurate to say that it is the fashion to treat heart disease with digitalis, for that remedy has now been in use for close upon a century and a half; but it would be true, or perhaps it would have been true before the war, to say that it is the fashion to send cases of heart disease to Nauheim. Time, therefore, is the essence of the matter, and it may take time to determine whether a theory or a treatment is merely a fashion or whether it has come to stay. None the less I think there is an intuitive faculty—a sort of flair for truth—stronger in some of us, it is true, than in others, but capable to some degree of cultivation in all, which may serve as a touchstone in the matter, and which will often save us from following a will-o'-the-wisp.

Fashion may affect either our beliefs as to the nature and origin of diseases or our practice in their treatment. Fashions in belief may lead to fashions in treatment, but we also find fashionable treatments which are based on no intelligible belief. In the eighteenth century, it will be remembered, Dr. John Brown propounded his doctrine of "excitability," and divided all diseases into the "sthenic," in which excitability is in excess, and the "asthenic," in which it is in defect. This theory became fashionable, and seeing that according to the Brunonian teaching 97 per cent. of disease is asthenic and needs stimulation, it also led to an abandonment of the then prevailing fashion of excessive bleeding. On the other hand, in the same century Bishop Berkeley introduced his panacea of "tar water" which also quickly became the fashion, though no pretence was made that its supposed virtues were based on any reasonable theory at all. To turn to a modern example, neurasthenia has in recent times been attributed to such different causes, amongst others, as mobility of the kidney, eye-strain, displacements of the uterus, intestinal auto-intoxication, disturbance of the "endocrine balance," and focal infection. Each of these beliefs has in its time been fashionable, and there have been corresponding fashions in treatment which have ranged from such trivial procedures as the ordering of spectacles or of fantastic diets, to more formidable measures, such as removal of all the teeth, or of the whole lower bowel. On the other hand, the use of the high-frequency current in the treatment of all manner of diseases, which was so much the fashion at the end of last century though now rather *démodé*, arose independently of any pathogenic theory.

Such, then, being the nature of fashions in medicine, we have next to ask, How do they arise? It is really very difficult to say. How do fashions arise in dress, or in art, or in games? We do not know. We can, however, recognize *some* modes of origin of medical fashions, and these have now to be considered.

Origin of Fashions from Fads.

First, fashions may arise out of fads. But this at once raises the question, What is a fad, and how does it differ from a fashion? Well, I suppose a fad is essentially an individual thing, a crochet or favourite idea held, often independently of evidence, by a single person or by a small group of persons. But sometimes the bees in the individual bonnet swarm, and then we get a fashion. A fashion, then, may be regarded as an epidemic fad. But in order that a faddist may infect others and make his fad epidemic he must be a person of some importance. You or I might wear any bizarre kind of waistcoat we pleased and no one would take any notice, but if the Prince of Wales, for instance, appears in America in an unusual garment the fashion spreads like wildfire throughout the States. It is very probable, I think, that Bishop Berkeley's tar water caught on as it did largely because he was a bishop; had he been a mere curate he would have been left to drink it alone.

It would be easy, though indiscreet, to mention contemporary examples of eminent fad-carriers who have infected large sections of the profession and so produced fashions, but everyone will be able to think of such instances for himself. Again, the faddist who is to succeed in making his fad a fashion must not only be a person of prominence; he must also be instant, both in season and especially out of season, in preaching his doctrine—as, indeed, most faddists by nature are. Reiteration is essential; he must proceed on the principle that "What I say three times is true," and he will infallibly obtain many disciples.

The Origin of Fads.

But all this only shifts the difficulty, for how does an individual become a faddist? As to this it may be remarked that the disease of faddery may be either congenital or acquired. To parody a familiar quotation, some are born faddy, some achieve faddery, whilst some have it thrust upon them. The congenital faddist, to take his case first, is met with in every walk of life. He is born with a kink in the brain, a natural worshipper of the idols of the cave, an optimist rather than a pessimist, credulous rather than sceptical, lacking in humour, judgement, and common sense. To quote the late Dr. Mercier, "the faddist is constitutionally incapable of weighing evidence, of suspending his judgement, or of entertaining doubts," and, as Macaulay said, he is "utterly lacking in the faculty by which a demonstrated truth is distinguished from a plausible supposition."

Others achieve faddery, and there are several ways in

* First delivered before the Newcastle-on-Tyne and Northern Counties Medical Society, and subsequently before the Cardiff Medical Society.

† Treatise of the Acute Diseases of Infancy. Translated by John Martyn, F.R.S. London, 1742.

which this may be done: through specialism is one. The man whose attention is confined to one disease is very apt to become faddy about it and to see it everywhere. His mind becomes subdued to what it works in. Tuberculosis officers, for example, are prone to find every lung "suspicious," whilst workers in V.D. clinics soon come to see everything through what Dr. Gee called "a syphilitic fog." As Oliver Wendell Holmes said of the great French syphilographer Ricord, they would submit Diana to treatment with the mineral specifics and order a course of blue pills (or N.A.B.) for the Vestal Virgins. Faddists of this type may be regarded as the victims of a complex.

Faddery may also be achieved through lapse of years, as a form of senility. The morbid character of this phenomenon is evidenced by the general experience that though a little faddery in youth is, like a belief in Socialism, an amiable weakness, in age scepticism is the natural and healthy attitude of mind. "He who begins in certainties," said Bacon, "will end in doubts, and he who begins in doubts will end in certainties." A thickening of the cerebral arteries may perhaps be the explanation of the onset of faddery in late life, just as it is said to be of garrulity; indeed, the two symptoms often go together.

Another mode in which fads are acquired is through a restless desire for novelty and boredom with things as they are—much the same attitude of mind, in fact, which makes a man a Radical in politics. Finally, a doctor may become faddy through trying to be too clever, just as many lay cranks—the teetotalers, vegetarians, antivivisectionists, and so on—are trying to be too good. This is really the most insidious of all forms of faddery, for it attacks a man on his best side. None the less, the pseudo-scientific crank is the most dangerous of all. An ordinary "unscientific" practitioner, for instance, would never have entertained such ideas as these (I quote from a letter in a medical journal):

> "Why not attribute neurasthenia to variation in the constitution of the blood, perhaps of its mineral constituents (for example, calcium) or its endocrine factors (for example, hyperthyroidism), or its vitamins, or some of its other components; or very frequently, to the presence of some toxin? Such a conception would give us the explanation of the wide distribution of the complaints in neurasthenia, and would offer a hopeful prospect of research. . . . In practice, when dealing with neurasthenia, I first suspect hidden dental sepsis, then insufficient diet (vitamins, etc.), often prescribe lime and cod-liver oil, as well as milk, eggs, butter, green vegetables, fruits, and even try a polyglandular endocrine capsule in accordance with its indications."

Beware, therefore, when you think yourselves very "scientific."

Finally, some have faddery thrust upon them by their teachers. Those of us who have the duty of training the rising generation of doctors have a great responsibility in this respect. We must not inseminate the virgin minds of the young with the tares of our own fads. It is for this reason that it is easily possible for teaching to be too "up to date." It is always well, before handing the cup of knowledge to the young, to wait until the froth has settled.

The Advertising Chemist and Fashions.

But to return to the origin of fashions in medicine. Another potent generator of them is the advertising activity of the modern manufacturing chemist. Now, I have no quarrel with the chemist as such. We owe a great deal to him. He has done much to make drug-taking pleasant, and has relieved the present-day practitioner from the trouble of learning how to prescribe artistically. We all know those pieces of blotting-paper which week by week drop from the skies on our desks and try to persuade us—and often succeed in doing so by a process of summation of stimuli—to prescribe for our patients a particular drug or food. Can it be denied that fashions in treatment often arise through no more recondite a cause than this? Of course, that may be regarded as legitimate business, but the chemist certainly goes outside his proper sphere when he tries to form fashions in pathological belief by issuing booklets or even magazines devoted to such subjects as uric acid, auto-intoxication, and endocrines and the part they play in the production of disease.

How Fashions are Maintained.

However started, once it has got going certain factors combine to maintain the momentum of a fashion for a time. Chief amongst these must be reckoned the herd instinct. "All we like sheep have gone astray." The desire to be in the swim, not to be "out of the movement," or to be "up to date," makes many a worthy man fall in with the fashion of the moment. Further, once a treatment has become fashionable the public demand for it helps to keep it alive. There is no doubt, for example, that the public, or at least the more educated part of it, often demands from the doctor such methods of treatment as vaccines or psycho-analysis, or whatever may be the *dernier cri*, whether his better judgement approves them or no. As an anonymous writer has said:

> ". . . Temperance, cleanliness, activity, are the three cardinal virtues of the body as Faith, Hope, and Charity, are of the soul. . . . It is easier to repeat incessant formulae of prayer than persistently to keep one's self unspotted from the world, and it is easier for fat old sinners to paddle about bare-foot in the dew at a Kneipp cure than to abandon at once and for ever their little darling sins of greed or indolence. One hears a constant cry of Lo here! or Lo there! and all the world rushes to sit hopefully under blue glass or swathe itself in pure wool in the ever-renewed belief that some substitute may be found for the fatiguing necessity of obedience to the three rules."

Fashions are also maintained by the cures which they effect at the outset of their career—for there can be no doubt that every fashion does effect some cures. It does so, we know, through the power of faith and suggestion, which is the meaning of Trousseau's well known advice to a patient, "Take this *while it is still curing*." But by and by, when the novelty has worn off, the cures cease.

The perfectly natural desire on the part of the doctor "to prove all things" is also responsible for keeping fashions going for a time. He is not sure that "there may not be something in it." This attitude of mind is entirely laudable; but other motives, by no means laudable, are sometimes at work also, for truth compels one to admit that there are a few members of our profession who exploit fashions and play up to the public demand for them *because it pays so to do*. This unsavoury aspect of our subject I do not propose to dwell on, but I think few will deny that it exists.

These, then, being the ways in which fashions in medicine arise and are maintained, let us now consider briefly their effects.

Effects of Fashions and Fads for Good and Evil.

At the outset it may perhaps be said that it is a mistake to take these ephemeral things too seriously, and that one must not become an "anti-fad-and-fashion-faddist." After all (it may be contended), the history of Medicine is the story of outlived fashions, and as individuals we rise on stepping-stones of our dead fads to higher things; that fashions and fads do not do much harm to the health of patients, whatever they may do to their pockets, for few of them are really dangerous; and that anyhow they add to the gaiety of professional life, for there is usually some harmless amusement to be got out of them. It may be maintained also, and with more force, that the existence of faddists is the price we pay for individual initiative and enterprise, and that, as a matter of fact, many pioneers in medicine—Jenner, Semmelweis, and Lister, for example, to mention no others—have been denounced by their contemporaries as cranks. Of fashions, too, it may be asserted that they are a rough mode of ascertaining the truth by the method of trial and error and of fishing for it with many lines—that, in short, they give us automatically the advantages of co-operation. Finally, it may be said that there is, after all, "something in" most fashions, and that by summarily repudiating them we run the risk of throwing the baby away with the bath.

There is truth in all this, but on the other side of the account is to be reckoned the harm fashions do in lowering us in public esteem and in helping to make us that "saddening spectacle" of which I spoke at the outset of this address. It is bad enough, in all conscience, that the saying "Doctors differ" should have become a proverb. But it is worse still that we should exhibit such a collective

variability in our views and practice from year to year; that we should at one time attribute most human ills to uric acid, at another to auto-intoxication, to oral sepsis, to "disturbance of the endocrine balance," or to avitaminosis; that our pathological beliefs should be dominated now by "toxins," now by "reflex action," or by "vicious circles"; that to-day we should seek to cure all manner of disease by excising the ovaries, to-morrow by removing the appendix or the teeth; one year by the injection of sea-water, another by the administration of sour milk, or by the application of violet rays; that we should pin our faith for collective salvation sometimes to "team work," and at others to "early diagnosis" or "preventive medicine"; in short, that we should be as much at the mercy of "stunts" as the yellow press, as much the slaves of catch-words as politicians, and as intellectually unstable as a popular electorate.

How to Restrain the Influence of Fashion.

Let us, then, consider how we can moderate and restrain the excessive sway of fashion in our practice and beliefs. And first it is to be noted that fortunately many of us have a natural immunity to fashions and fads. These are men with a mental make-up the very opposite of that of the congenital faddist of whom I have already spoken. They are individualists, lacking in the herd instinct; sceptical rather than dogmatic; pessimists rather than optimists, with a sense of humour and a natural instinct for truth. And the same is true of nationalities. The Scots, for instance, are, on the whole, being a humorous nation, singularly free from fads—except in the sphere of religion, though a Scottish faddist, when you meet him, is, like Barrie's Scotsman "on the make," "a fearsome spectacle." America, on the other hand, is, I suppose, the most fad-and-fashion-ridden country on the civilized globe. This is probably the combined result of defective general culture, a love of novelty as such, and too much money. It is interesting in this connexion to speculate upon the possible effect on our liability to suffer from fashions of the admission of women in large numbers to our professon. Will the woman who has not the courage to wear last year's hat have the courage to prescribe last year's drug? I do not know. We can only wait and see; perhaps I should say we can only watch—and pray.

Of course, the antifad temperament has its own drawbacks. It is possible, as was said of a very distinguished physician of the last generation, "to carry common sense to the point of a vice." The acquired scepticism of age also is not without danger. As Mark Rutherford warns us in *Deliverance*:

> "A man must for ever keep himself open to the reception of new light. As he gets older, he will find that the tendency grows to admit nothing into his mind which does not corroborate something he has already believed, and that the new truth acquired is very limited. If he wishes to keep himself young he must use his utmost efforts to maintain his susceptibility. He must not converse solely with himself and turn over and over again the thoughts of the past. He must not in reading a book dwell upon those passages only which are a reflection of his own mind."

On the other hand, it is possible to have too open a mind. There are some propositions ("E.R.A." for example) of which one should be able to say, "This is certainly not true, or, if it is, it has no right to be." We are here confronted with the old difficulty of finding the *via media* and of practising that "animated moderation" which Bagehot used to praise. On the whole, perhaps, we cannot do better than follow the advice of Pope:

> "Be not the first by whom the new is tried,
> Nor yet the last to lay the old aside."

Effects of Education.

It is commonly said that education is a great safeguard against quackery and faddery. I profoundly disbelieve it. So far as I can see, the higher one goes in the social scale the more does fashion in health matters prevail, and the so-called *intelligentsia* are the most gullible of all. It would almost seem, indeed, as if everyone has a certain stock of credulity, and the more sceptical he is in everything else the more credulous is he in matters medical. It may be replied that this is the result of the wrong kind of education and that what is needed is more teaching of science. Again I disbelieve. If this were so the saying of Matthews Duncan would not be true—as I, for one, believe it to be—that "There are more quacks inside the profession than outside it." No; if education is to help us it must be a more humanistic education, by which I do not necessarily mean a classical training—though there is much to be said for that—but an instruction in the philosophy of a subject as opposed to its practical applications. In medicine it means especially the teaching of medical history and pathology. Sanity, humour, breadth of view, and a power of criticism are, it has been said, the marks of humanism, and the result of a humanistic education is a critical, humorous spirit with a sense of proportion, not given to extremes and with some sense of historical perspective and some logical faculty. It is that type of mind that we have to aim at shaping in our students, and that is why I profoundly regret the premature scientific specialism to which the intending doctor of to-day is perforce driven. We want, in short, more of the Hellenistic spirit, the spirit of common sense, sanity, and moderation. To quote Professor Gilbert Murray:

> "If you look at a Greek statue or bas-relief, or if you read an average piece of Aristotle, you will very likely at first feel bored. Why? Because it is all so normal and truthful; so singularly free from exaggeration, paradox, violent emphasis; so destitute of those fascinating by-forms of insanity which appeal to some similar faint element of insanity in ourselves. . . . What is at the back of this sort of feeling? It is the same psychological cause that brings about the changes of fashion in art and dress; which loves 'stunts' and makes the fortunes of yellow newspapers. It is boredom or ennui. . . ."

It was this spirit of sanity which informed Greek medicine, so that, as Dr. Singer says of the physicians of the Hippocratic school—

> "they remain for the most part, patient observers of fact, sceptical of the marvellous and the unverifiable, hesitating to theorize beyond the data, yet eager always to generalize from actual experience; calm, faithful, effective servants of the sick."

Effects of Ridicule.

Apart from such an education as this, a sense of humour is the best defence against fads and fashions, and ridicule is the weapon most adapted to their destruction. It has been remarked that there is no use in arguing with a prophet; you can only refuse to believe him. And so there is no use in arguing about a fad or a fashion; you can only laugh at it. If someone tells you, for example, that he is able to cure most diseases, from a common cold to cancer, by putting his patients on the diet of King Nebuchadnezzar, you can only smile. It is idle to point out to him that others—the late Dr. Salisbury, for example—cured, or claimed to cure, the like diseases by adopting the diet of Giant Fee-faw-fum. The one is fanatical about raw herbs and the other about raw meat, and reason has nothing to do with the matter. Further, I think that we tend to deal too tenderly with the crank, and that he is allowed too much rope in our medical societies, journals, and newspapers. I know that life is short, and that the sane are busy men while the cranks are only busybodies, and that there are better and more amusing things to do than to waste time in confuting them; but all the same, judgement is too often allowed to go by default, with the result that faddists have to-day far more influence with the public and far more say in shaping health legislation than their importance merits. The general practitioner also should make a better stand against these things. He should be less the slave of the advertising chemist, less afraid to use his own judgement and common sense, and should not allow himself to be bluffed by faddists, however eminent. For, after all, the test of truth is in its practical results, and it is by the experience of the general practitioner that in the last resort all fads and fashions must be judged. Perhaps in the final analysis, however, the conclusion of the whole matter may be that both faddists and antifaddists are required for progress; that we must always zigzag towards our goal like a ship tacking against the wind—now going too far to the right, now to the left; that, in a word, both the "crank" and the brake are necessary for the machine.

Fashions in Doctors.

Finally, just as there are fashions in pathological theories and in treatments, so there are fashions in doctors. I confess, gentlemen, that I have always been puzzled to explain what makes for success in our profession. It certainly does not seem to be a question of knowledge, nor yet of manners, nor even of character or morals. But if it is difficult to account for ordinary success, it is still more difficult to explain what makes a doctor the "fashion" in his town or district—what makes him, to use an expressive Americanism—"it." We meet the same problem, of course, in other spheres. Why, for instance, of a thousand novels all alike jejune, does one become a "best seller"? Or why does such a song as (let us say) "Yes, we have no bananas" sweep a continent, when a hundred others with equally foolish words and no less catchy an air drop still-born from the lips of the music-hall comedian? "Sir," said Dr. Johnson, "it is in vain to try to explain the inscrutable."

In some cases, of course, a doctor becomes the fashion by skilful self-advertisement, "by toying," as Sir William Osler said, "with the Delilah of the press," but many a man has become the fashion *malgré lui*, and it would be a profound mistake to suppose that all fashionable practitioners are charlatans. On the contrary, many of them have been and are men of whom any profession might be proud; it will suffice, perhaps, to mention Asclepiades in Roman times and Tronchin in eighteenth century France, without referring to more modern examples. Still, one should not envy the fashionable doctor; rather should one wonder at him. He leads a life of slavery, even although, as a wag said, it is slavery on the guinea coast; and, circumstanced as he is, good and thorough work becomes impossible. His position, too, on a pinnacle is always precarious. He has, it is true, his little day, but he is apt to wake up one morning to find that his worshippers have stampeded *en masse* overnight to some newer shrine of the fickle goddess Fashion.

THE EFFECT OF PITUITRIN AND INSULIN ON BLOOD SUGAR:

*THEIR ANTAGONISM AND THE MODE OF ITS ACTION.**

BY

R. D. LAWRENCE, M.A., M.D.,
CHEMICAL PATHOLOGIST, KING'S COLLEGE HOSPITAL;
AND
R. F. L. HEWLETT, M.R.C.S., L.R.C.P.,
ASSISTANT CHEMICAL PATHOLOGIST.

RECENT work by Burn[1] on rabbits has clearly shown the antagonism of infundibular extracts to insulin. If given in sufficiently large doses the administration of posterior lobe extracts prevented the fall of blood sugar caused by insulin. He states that this effect is not produced by extracts of the anterior lobe or of any other tissue (except adrenaline). Nor did he find that pituitrin given alone produced such a rise in blood sugar as to account for its almost complete inhibition of insulin action. Some of the doses he used on rabbits were so large, corresponding to about 150 c.cm. for an average human adult, that it was felt that their effect might be partly toxic and at any rate did not permit of the same conclusions being drawn regarding the effect of therapeutic doses in man. Again, these results were obtained in normal rabbits and would not necessarily apply to diabetics. Accordingly the scope of this investigation has been to examine the effect of therapeutic doses of infundibular extract on the blood sugar content of normal and diabetic man, particularly as regards an insulin antagonism. Other points of interest have arisen, especially regarding the site of this antagonism, and are also included in this paper. Parke Davis 10 per cent. infundibular extract (pituitrin) has been used, and care has been taken to use the same batch of insulin. The blood sugar was estimated in duplicate by Maclean's method on blood drawn from the ear, and the normal persons were all students and residents at King's College Hospital, to whom our thanks are due for some rather trying experiments. Unfortunately we were not able to follow the blood sugar for as long as we wished, but this has not vitiated the results.

* This investigation was carried out with the aid of a grant from the Medical Research Council.

Effect of Pituitrin on Blood Sugars in Normal and Diabetic Persons.

The literature is full of contradictions regarding the effect of pituitrin on blood sugar: Borchardt, Cushing, and others state that it causes a rise in blood sugar, and Franchini, Stenstrom, and others deny this. Burn found in rabbits with large doses that sometimes there was a slight rise and sometimes a slight fall. We have investigated this by giving 1 c.cm. subcutaneously to normal and diabetic persons (Tables I and II). The normal persons received their pituitrin three to four hours after breakfast when their blood sugars had returned to a fasting level, and the blood sugars were followed every half-hour for two hours. Of the six cases investigated, three showed no appreciable change—

TABLE I.—*Effect of Pituitrin on Blood Sugar of Normal Fasting Individuals.*

	Fasting Level.	Pituitrin Injected.	Time (Hours) after Pituitrin.			
			1/2.	1.	1½.	2.
Case A ...	94	2 c.cm.	87	86	77	—
Case B ...	125	1 c.cm.	150	141	—	1'3
Case C ...	98	1 c.cm.	98	95	93	—
Case D ...	90	1 c.cm.	99	100	93	—
Case E ...	96	1 c.cm.	121	—	120	—

less than 10 mg. per cent.; one showed a drop of 17 mg., and two others a rise of about 20 mg. (Details of five of the six cases are given in Table I.) Consequently we can conclude that pituitrin has no appreciable effect on blood sugar, small changes probably being due to variations in the water content of the blood, as Partos and Katz-Klein[2] have shown. The three diabetics similarly showed no variation in blood sugar (Table II).

TABLE II.—*Effect of Pituitrin on Blood Sugar of Fasting Diabetics.*

	Fasting Level.	Pituitrin Injected.	Time (Hours) after Pituitrin.			
			1/2.	1.	2.	2½.
Case A ...	96	1 c.cm.	92	96	97	—
Case B ...	143	1.5 c.cm.	148	156	151	155

Antagonism of Pituitrin to Insulin in Normal and Diabetic Persons.

Having determined the separate effect of a given dose of pituitrin and of insulin in various individuals, we next gave them simultaneously in different parts of the arm. The results (Table III) show the almost completely antagonizing

TABLE III.—*Antagonism of Pituitrin to Insulin in Normal Persons.*

	Before Insulin or Pituitrin.	Insulin or Pituitrin Injected.	Time (Hours) after Injection.			
			1/2.	1.	1½.	2.
Case I ...	100	Ins. 15 units	81	66*	75*	Glucose given
"	92	Ins. 15 units, Pit. 0.8 c.cm.	90	93	91	87
Case II ...	101	Ins. 15 units	85	—	72*	—
"	104	Ins. 15 units, Pit. 1 c.cm.	90	—	91	—

* Symptoms of hypoglycaemia.

effect of pituitrin on insulin. The antagonism is most marked in the first hour, for in some of the cases the insulin seemed to gain the upper hand in the second hour and lowered the blood sugar considerably, though never so low as when insulin was given alone.

The same antagonism was clearly demonstrated in diabetics. Insulin alone was given one day to certain cases on standard conditions of diet, and on the following day 1 c.cm. of pituitrin was injected at the same time as the insulin. The blood sugar was estimated for five hours, and the results are shown in Table IV. The first entry is the

TABLE IV.—*Antagonism of Pituitrin to Insulin in Diabetics.*

	Fasting Level.	Breakfast and Insulin.	Time (Hours) after Insulin given.				
			1.	2.	3.	4.	5.
Case A ...	109	Ins. 18 units	125	118	82	—	68
,,	109	Ins. +1 c.cm. Pit.	162	193	158	—	133
Case B ...	222	Ins. 14 units	253	223	201	185	
,,	189	Ins. +1 c.cm. Pit.	276	264	241	213	
Case C ...	139	Ins. 10 units	179	149	133	102	
,,	130	Ins. +1 c.cm. Pit.	168	196	164	130	
Case D ...	121	Ins. 15 units	114	90	—	56*	
,,	89	Ins. +1 c.cm. Pit.	96	103	79*	58	

* Symptoms of hypoglycaemia.

In Case B the difference before and after pituitrin is more marked if the initial levels are regarded.

fasting level; the injections were then given and breakfast followed half an hour later. Three of the cases showed the antagonism very clearly. The fourth (D) was less definite; he also had the lowest blood sugar level and was on the lowest diet. Presumably he had the least carbohydrate or glycogen store in his body, and it is likely that this is why pituitrin antagonized insulin less than in the other cases; for we will produce evidence to prove that pituitrin mobilizes glycogen and thus counteracts the action of insulin.

Tolerance of Normal Persons for Insulin.

Insulin had its usual effect in lowering the blood sugar of all the normal individuals investigated, and it may be interesting to record the effects of different doses. In every case the insulin was administered three hours after breakfast, when the blood was at a normal fasting level, and the fall of blood sugar was watched for two hours unless the onset of hypoglycaemia supervened before that time. Lilly insulin was used throughout the experiments, as it seemed to be more rapid in action than British.* Doses of 10 units lowered the blood sugar slightly from 10 to 15 mg. per cent., but not sufficiently to cause symptoms of hypoglycaemia. Doses of 15 units lowered the blood sugar by from 15 to 35 mg. in different cases, but caused symptoms only once at a blood sugar level of 66 mg. at the end of one and a half hours. Half an hour later this case had recovered spontaneously without the administration of glucose and the blood sugar had risen to 75 mg. Such a recovery is a well known fact, and would indicate that the discharge of glycogen from the liver is not really inhibited by insulin, as has been stated, and that the store of glycogen is not exhausted when hypoglycaemia does occur, but merely that glycogenolysis is not able to keep pace with the rapid disappearance of sugar from the blood caused by large doses of insulin in normal individuals. Doses of 20 units caused symptoms of hypoglycaemia in both the normal cases to which it was given, but one of them recovered spontaneously and showed higher blood sugars at the end of two than of one hour. Other cases had to be given glucose by mouth, and the time required for recovery was from three to ten minutes. It was thus fairly clear that 15 to 20 units is about the limit of tolerance for normal individuals in the fasting condition.

Another point of interest was to determine the tolerance for insulin of a normal individual on a normal diet. A brave volunteer having been obtained, he was given increasing doses of insulin before breakfast on successive days until symptoms appeared. Blood sugar tests were not carried out, for it had already been determined that symptoms appeared in his case at about 75 mg. per cent. Two doses a day were not given, both on account of the inconvenience of such a procedure and to avoid depleting his glycogen store. It is assumed that the latter is not likely to be much exhausted by one dose a day, whereas two large doses a day might very well deplete it, so that he would tolerate less insulin as the experiment went on. On each day his breakfast consisted of about 60 grams of carbohydrate, 20 to 30 of protein and fat, and the dose of insulin was increased by 10 units every day. A dose of 40 units was tolerated without any effects, but 45 units of A.B. insulin produced quite severe symptoms about three hours after breakfast. Unfortunately the subject had grown careless about insulin, forgotten all about his injection, and was just setting out on a walk unarmed with sugar when symptoms of weakness, dizziness, and faintness came on suddenly. He managed to reach a toffee shop, and without unnecessary explanations ate a quarter of a pound of toffee and was restored in a quarter of an hour. It seems likely that if he had had some carbohydrate two hours after his insulin the symptoms would never have occurred, and that the normal individual could tolerate over 100 units a day, perhaps far more, if supplied frequently with a large amount of carbohydrate to cover it. While insulin is actually balanced by the active absorption of carbohydrate, no hypoglycaemia occurs.

This experiment tells us little or nothing definite about the effect of an injection of insulin on the production of endogenous insulin, but it is probable that the latter was produced as usual under the stimulus of carbohydrate food. For if no, or little, endogenous insulin had been produced, as in diabetes, we imagine that the carbohydrate of his breakfast and of his glycogen store would have been sufficient to balance 45 units of insulin. This individual tolerated 20 units in the fasting condition with the appearance of only slight symptoms which did not require the administration of glucose to effect recovery.

Certain Symptoms due to Pituitrin.

All the normal individuals who received a therapeutic dose of 1 c.cm. of pituitrin developed unusual and alarming symptoms which we have not found described elsewhere.* From ten to thirty minutes after the hypodermic injection they became a ghastly pale grey colour, and some of them became dizzy, faint, and shaky. This appeared to be due to marked vaso-constriction of the cutaneous and probably of the cerebral vessels. The pulse was not quickened nor was the blood pressure raised. This latter point was confirmed in two cases by the sphygmomanometer, but in the others was merely a clinical impression of the pulse. Fortunately their appearance was more terrifying than their feelings, and the pallor and other symptoms usually passed off by the end of an hour. Now, widely as pituitrin is used in obstetrics, etc., it does not seem to have the above effect, and a few cases which we have recently observed closely (and personally) have not shown even pallor. Both normal men and women have shown these symptoms, but they have been absent in the five diabetics tested. Accordingly, it is not likely to be due to some unusual toxic product, such as histamine, of the special batch of pituitrin used. Moreover, one of our cases of diabetes insipidus who is constantly on the drug nearly always notices this effect if he takes more than 0.5 c.cm. This apparent difference in action of pituitrin on normal persons, diabetics, and women in labour offers an interesting field for confirmation and further investigation. We have no explanatory hypothesis to offer.

Blood Sugar Curves in a Case of Diabetes Insipidus.

Before we attempt to discuss the relation of the pituitrin-insulin antagonism to the wider questions of glycogenic function and carbohydrate metabolism in general some other experiments bearing on the subject will be recorded. It is well known that a lowered carbohydrate tolerance is associated with hyperpituitarism (acromegaly) and a raised tolerance with hypopituitarism (Fröhlich's syndrome, etc.). These diseases are commonly supposed to be associated with disturbance of the anterior lobe of the pituitary

* British insulin has recently become quicker in its action.

* Since this was written similar effects have been described by B. Sacks (*Heart*, vol. xi, No. 4, December, 1924.)

gland which affects carbohydrate metabolism. But it is the posterior lobe, or at least extracts from it, that affect insulin action. Also the carbohydrate metabolism is affected in the following case of diabetes insipidus, although the condition is commonly held to be due to deficiency of the posterior lobe alone. Therefore it would appear that the posterior lobe as well as the anterior is concerned with carbohydrate metabolism.

A young man developed intense diuresis at the end of the war as the result of cerebral malaria contracted in East Africa. It is controlled by pituitrin injections. He also shows evidence of involvement of the anterior lobe in having lost his pubic hair and becoming impotent. His blood sugar curves after 50 grams of glucose given fasting are shown in Table V. In one he had

TABLE V.—*Effect of Glucose Meal on Case of Diabetes Insipidus with and without Pituitrin.*

	Before Glucose Meal.		Time (Hours) after Glucose Meal.		
			1/2.	1¼.	2.
0.75 c.cm. pituitrin 15 minutes previously.					
Arterial blood	94	Glucose 50 grams	109	130	100
Venous blood	94		102	120	81
Arterio-venous difference ...	0		−7	−10	−19
No pituitrin for 24 hours.					
Arterial blood	116	Glucose 50 grams	94	101	68
Venous blood	91		88	70	64
Arterio-venous difference ...	−25		−6	−31	−4

had no pituitrin for twenty-four hours, and in the other was given 0.75 c.cm. of pituitrin a quarter of an hour before the test. Without pituitrin he shows an abnormally high tolerance for glucose. Indeed, his curve descends from the fasting level instead of rising. With pituitrin, although the tolerance is still high, there is a very definite difference and the curve is an ascending one. This is seen both in the arterial and venous blood sugar, and in the difference between the two, which is greater without pituitrin.

This arterio-venous difference is absent or very slight in diabetes, and we lay considerable stress on it as an indication of the powers of the muscles to store sugar and abstract it from the blood.[3] We presume that it is an index of glycogen synthesis in general, and that the glycogenic function of the liver runs parallel with that of the muscles. We look upon these curves as further evidence that pituitrin lowers the assimilation power for carbohydrate, interferes with the glycogenic function, and perhaps actually causes glycogenolysis.

Mode of Action of the Pituitrin-Insulin Antagonism.

The action of insulin on blood sugar and glycogen stores is little enough understood, but the effect of pituitrin is still more obscure. It is known that pituitrin inhibits the glycogenolysis of adrenaline and anaesthetics, and therefore, when it antagonizes insulin, it hardly seemed likely that it does so by stimulating glycogenolysis. To determine the latter point more definitely, we have taken advantage of the well known action of ergotamine in paralysing the sympathetic and preventing glycogenolysis. Ergotamine prevents adrenaline hyperglycaemia and also enhances the action of insulin[1] in lowering blood sugar by inhibiting the mobilization of sugar from the glycogen of the liver. Therefore we have investigated the pituitrin-insulin antagonism on rabbits under the influence of ergotamine tartrate. In the first group of experiments blood was obtained from the ear veins, but this was found so difficult in ergotaminized rabbits that blood was obtained by heart puncture in all the latter experiments. The same rabbit was used for all the experiments.

The results of the first group of experiments is given in Table VI and Fig. 1. In Experiment A, 5 mg. of ergotamine was given intravenously to a normal rabbit who had received no food for eighteen hours. Two hours later 3 units of insulin (Lilly) were given subcutaneously and the blood sugars followed until they had fallen from 112 to

TABLE VI.—*Effect of Ergotamine on Pituitrin-Insulin Antagonism in a Rabbit.*
(For description see text.)

Time in Minutes.	Experiment A.	Experiment B.	Experiment C.
—	5 mg. ergotamine 1 hr. 40 mins. before zero	No ergotamine	No ergotamine
0	112	138	153
0	3 units insulin	3 units insulin	3 units insulin
25	90	—	109
45	67	—	—
65	58	77	77
—	1 c.cm. pituitrin	1 c.cm. pituitrin	—
85	48*	91	—
95	35	—	69
110	37	83	—
120	32	—	63
135	Glucose given	77	—

* Symptoms of hypoglycaemia.

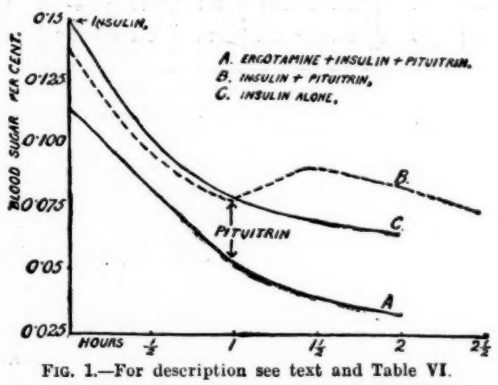


FIG. 1.—For description see text and Table VI.

58 mg. per cent. at the end of one hour. Then 1 c.cm. of pituitrin was administered and found to have no antagonizing effect on insulin, as the blood sugar steadily dropped during the next hour. Macleod, Banting, and Burn have shown that, without ergotamine, pituitrin always causes a rise of blood sugar at this stage.[1] Symptoms of hypoglycaemia appeared, requiring the administration of glucose, and the animal did not fully recover for another hour.

The same experiment was repeated fourteen days later with identical doses of pituitrin and insulin, but without ergotamine (Experiment B). The antagonism of pituitrin was clear but did not last long and was not complete, as the dose of insulin was too great to be entirely balanced by 1 c.cm. of pituitrin. No symptoms of hypoglycaemia appeared. On a subsequent day the same dose of insulin was given alone (Experiment C). The blood sugar fell steadily, but not to such a low level as when ergotamine was given, a well known phenomenon.

These experiments seemed to show that ergotamine abolished the antagonism of pituitrin for insulin. This was confirmed in another way with smaller doses of insulin (Table VII, Fig. 2). In Experiment A, 1½ units were given alone, and this proved to be a dose which caused a moderate fall of blood sugar which was followed later by a spontaneous rise. In a second day's experiment (B) 1 c.cm. of pituitrin was given along with insulin. The antagonism of pituitrin was clear and a slight rise of blood sugar occurred, to be followed by a fall when the pituitrin action became enfeebled, as it usually is after one hour. On a third day's experiment (C) 5 mg. of ergotamine was given, and two hours later the same dose of pituitrin and insulin. At first the pituitrin antagonized the insulin, but later the blood sugar fell to a lower level than in B, as always happens when ergotamine has been given to inhibit glycogenolysis. Experiment C was contrary to what we had expected, and contradictory to the results obtained in Table VI. But it was felt that the preliminary rise in blood sugar might simply have been caused by the pituitrin

TABLE VII.—*Effect of Ergotamine on Pituitrin-Insulin Antagonism in a Rabbit.*
(For description see text.)

Time in Minutes.	Experiment A.	Experiment B.	Experiment C.	Experiment D.
—	Insulin alone	Insulin + pituitrin	Ergot 2 hours previously	Ergot 2 hours previously
0	125	136	125	125
0	1½ units insulin	1½ units ins. +1 c.cm. pit.	1½ units ins. +1 c.cm. pit.	1½ units ins. +1 c.cm. pit.
30	98	145	134	158
60	85	130	118	106
90	84	121	92	93
120	84	116	89	71
—	—	—	—	1 c.cm. pit.
150	—	—	81	60
180	—	106	62	59*
210	117	—	—	—

* Symptoms of hypoglycaemia.

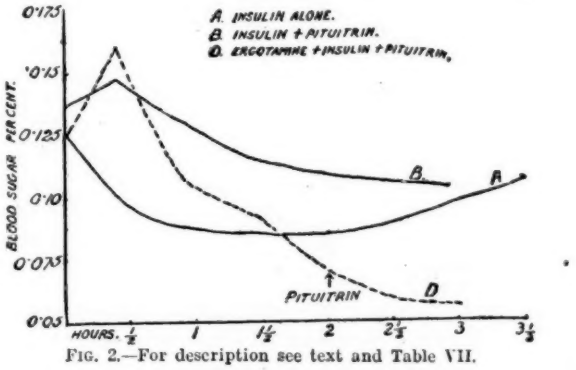


FIG. 2.—For description see text and Table VII.

coming into action more rapidly than insulin and producing the initial rise in blood sugar which is the common effect on most rabbits; or, more likely still, that the ergotamine had not yet fully paralysed the sympathetic. Accordingly in Experiment D a second dose of pituitrin was given two hours after the first, when the blood sugar had fallen to a much lower level and there was no doubt that the action of ergotamine was fully established. This second dose of pituitrin had no effect in antagonizing insulin, and the blood sugar continued to fall in the third hour and slight symptoms of hypoglycaemia appeared. Without ergotamine Banting, Macleod, and Burn have shown that an injection of pituitrin invariably abolishes the insulin hypoglycaemia and raises the blood sugar as quickly as an injection of glucose itself.

It seems quite clear from these experiments that ergotamine abolishes the antagonism of pituitrin to insulin.

Evidence that Pituitrin can Cause Glycogenolysis and Reduced Carbohydrate Tolerance.

The above experiments with ergotamine show that this drug abolishes the usual antagonism of pituitrin to insulin. Since ergotamine acts by paralysing the sympathetic and preventing glycogenolysis, we can conclude that pituitrin counteracts insulin by mobilizing sugar from the glycogen of the liver or muscles or both. We look upon the experiment on the diabetic (Case D, Table IV) as affording confirmatory evidence of this. His carbohydrate diet, his blood sugars, and hence his glycogen and carbohydrate stores, were lower than in the other diabetics, and pituitrin antagonized insulin only very slightly. We look upon him as being in much the same condition as an ergotaminized rabbit—that is, unable to mobilize glycogen because he had none in store. The experiment on the case of diabetes insipidus points to the same thing. When he was deficient in pituitrin his carbohydrate tolerance and his power of storing glycogen were very high. After a dose of pituitrin his carbohydrate tolerance, though still very high, was definitely less. It was not possible to try the effect of a large dose of pituitrin on his blood sugar curve because he developed these curious symptoms already described even with a small dose of 0.75 c.cm.

The clinical evidence of disease due to an enlarged and overactive pituitary gland is of the same nature. In acromegaly the blood sugars are commonly raised, the carbohydrate tolerance reduced, and we may presume that glycogenolysis is excessive. At first the fasting blood sugar is normal, but later all the features of a true diabetes mellitus may develop, presumably by prolonged overstrain of the pancreas. Certainly, it is the anterior lobe which is supposed to be especially affected in acromegaly, and which has been looked upon as influencing carbohydrate metabolism. But it seems clear from our experiments that posterior lobe extracts (pituitrin) do affect carbohydrate metabolism. No clear separation of the functions of the two parts of the gland can be made with our present knowledge.

Evidence that Lack of Pituitrin Causes Excessive Glycogen Synthesis.

The only evidence we have been able to produce of this is the very high carbohydrate tolerance of the above case of diabetes insipidus. But in addition it is generally accepted that deficiency disease of the pituitary, Fröhlich's syndrome, etc., is accompanied by a markedly increased carbohydrate tolerance.

Evidence that Pituitrin can Prevent Glycogenolysis.

Although this is directly contrary to the action of pituitrin already described, there is clear evidence that it can act in this way. Stenstrom[1] was the first to show that large doses of pituitrin inhibit the hyperglycaemia and glycogenolysis caused by adrenaline and anaesthetics. This has been confirmed by Burn and others. Similar evidence is afforded by some observations of Falta[4] on the effect of adrenaline on the glycosuria of acromegaly. He records two cases in which the patients showed abundant glycosuria after carbohydrate food, but an injection of adrenaline failed to produce any glycosuria.

There is evidence to suggest that when insulin hypoglycaemia is proceeding too far, recovery is aided by an increased production and liberation of adrenaline in the body, which causes a mobilization of glycogen and a rise in blood sugar concentration. In view of Stenstrom's experiments it does not seem likely that when pituitrin antagonizes insulin it does so by calling this protective adrenaline into play.

From all the above evidence it seems that pituitrin plays a complicated part in the regulation of blood sugar and carbohydrate metabolism. It seems to have a balancing action on carbohydrate metabolism and inhibits the action of drugs which tend to change the blood sugar concentration away from normal in either direction. It controls both the hypoglycaemia of insulin and the hyperglycaemia of adrenaline, but it effects no appreciable change on a normal blood sugar concentration.

The Similar Effects of Thyroid and Pituitary on Carbohydrate Metabolism.

It is interesting to note the great similarity of action of these two glands and their extracts, both experimentally and in the clinical evidence of disease. Both have marked effects on total metabolism as judged by the basal metabolic rate, which is increased or diminished respectively by excess or deficiency of both glands. Thyroid feeding in animals empties the glycogen store, raises the blood sugar, and inhibits insulin action to a marked extent.[5] In hyperthyroidism (Graves's disease) we commonly find raised blood sugars and diminished carbohydrate tolerance, as shown by the response to a glucose meal. As already pointed out by one of us in another publication,[6] it is very common to find a very low fasting respiratory quotient, which is taken as evidence that the carbohydrate stores of the body are deficient and the body is drawing on protein and fat. The power to oxidize carbohydrate is not defective, for the respiratory quotient rises very high after a carbohydrate meal in these hyperthyroid cases. The clinical picture of hypothyroidism and hypopituitarism is also very similar. Indeed, all the metabolic features of excess and deficiency disease of the two glands are almost the same, and we are

inclined to attribute them primarily to the disturbance of carbohydrate metabolism, and especially to the upset of normal glycogenic function. Many investigators have pointed out effects that disease and extirpation of the thyroid have on the morphology of the pituitary gland, and vice versa, but no constant changes have so far been established.

Does Insulin Antagonize Pituitrin?

There is no clear evidence on this point. We have been struck with the tendency common in diabetics on insulin treatment to become obese on very low diets, sometimes less than 20 calories per kilogram of body weight, but it is rather drawing a bow at a venture to attribute this to inhibition of normal pituitary function. We have heard, however, of a male insulin case who is developing more definite symptoms of hypopituitarism—deposition of excessive fat round the abdomen and buttocks and the loss of pubic hair. We have unfortunately not been able to get in close touch with the case up to the present. The similarity of the appearance of many insulin cases to that of hypopituitarism was noted early by several clinicians in America.

One of us has produced evidence that insulin has a remarkable effect in controlling and ameliorating certain cases of Graves's disease,[6] and other investigators have observed the same effect. In the same way we believe that insulin might affect acromegaly favourably and prove useful in its treatment, but so far we have not had a suitable case of active acromegaly on which to try it.

Conclusions as to the Effect of the Pituitary on Carbohydrate Metabolism.

Any conclusions we draw are put forward very tentatively. It would seem that the pituitary has a powerful stabilizing influence on blood sugar and carbohydrate metabolism. There are two well recognized mechanisms which control and affect blood sugar concentration. The first is the mechanism which produces varying amounts of endogenous insulin to keep the blood sugar normal by balancing the carbohydrate of the food. It is clearly anabolic in function. The second is the immediate action of adrenaline in raising the blood sugar by mobilizing glycogen to meet any extraordinary needs of the individual for sugar. This mechanism is clearly katabolic. Pituitrin has no definite immediate action on blood sugar, but it controls and compensates the excessive action of the other two substances, tending to keep the blood sugar normal and at an optimum for the individual. These are the facts. But the explanation of how pituitrin can at one time stimulate glycogenolysis and at another inhibit it, as it appears to do, remains a complete mystery. It may be dangerous to deduce the normal action of an internal gland from the effects produced by its extracts, but where the pituitary is concerned the evidence of disease points to the same conclusions. We would suggest that in normal metabolism the pituitary gland, like the thyroid, maintains a balance between anabolism and katabolism. When the gland is upset in either direction an unbalanced condition of metabolism follows, and the first manifestation of this, perhaps the primary cause of all the other metabolic changes, is the upset of the glycogenic regulation of carbohydrate stores and blood sugar concentration.

SUMMARY.

1. Subcutaneous injection of therapeutic doses of 1 c.cm. of posterior lobe extract (pituitrin) have no appreciable or constant effect on blood sugar concentration in normal and diabetic individuals.

2. These doses markedly antagonize the effect of insulin on blood sugar, both in normal persons and diabetics. Experiments with ergotamine show that this antagonism is produced by the mobilization of glucose by pituitrin.

3. The insulin tolerance of normal individuals in the fasting condition is about 15 to 20 units. Much more can be tolerated when insulin is balanced with food.

4. Curious symptoms caused by therapeutic doses of pituitrin in normal individuals are described.

5. Blood sugar experiments on a case of diabetes insipidus are described and their significance is discussed.

6. It is suggested that the pituitary gland, like the thyroid, is one of the most important factors in producing a normal balance between anabolism and katabolism and does so primarily by its effect on glycogenic function and carbohydrate metabolism.

REFERENCES.

[1] Burn, J. H.: *Journ. of Physiol.*, lvii, No. 5, 1923. (Consult this for other references.) [2] Partos and Katz-Klein: *Zeit. f. Exper. Med.*, xxv, 98, 1921. [3] Lawrence, R. D.: BRITISH MEDICAL JOURNAL, March 22nd, 1924. [4] Falta: *Endocrine Diseases*, third edition, p. 278. [5] Burn and Marks: *Proc. Phys. Soc.*, June, 1924. [6] Lawrence, R. D.: BRITISH MEDICAL JOURNAL, October 25th, 1924.

ON THE TREATMENT OF CONVERGENT CONCOMITANT SQUINT.

BY

A. FREELAND FERGUS, M.D., F.R.F.P.S.G., LL.D.,

CONSULTING SURGEON, GLASGOW EYE INFIRMARY.

SINCE the meeting of the International Ophthalmic Congress in Edinburgh in 1883 I have always adopted, as a general plan of operative procedure, advancement instead of tenotomy, and on more than one occasion I have ventured to say that tenotomy in ordinary circumstances amounts to malpraxis. It is certainly to Dr. E. Landolt that we owe this changed point of view. Forty years ago he pointed out, in numerous writings and later in a small monograph on the muscles of the eyeballs, the unreasonableness of tenotomy. Strabismus does not depend on overaction of the convergence, but on a defect in the action of the external recti muscles, due no doubt to a fault in the innervation. Landolt has conclusively shown that there is no overaction of the internal recti—that the error is one of impaired latent divergence.

The definition I always gave to the students who attended my instruction was: When the axes of vision do not intersect at the point of fixation, then there is squint. This definition includes all possible cases of squint, and, when properly interpreted, includes also the various forms of heterophoria.

In concomitant convergent squint the axes intersect, if they are in the same horizontal plane, at some point nearer than the point of fixation. If they are not in the same horizontal plane they cross each other somewhere nearer than the point of fixation. One of the characteristics of the variety of squint under consideration is that for almost any point of distant fixation within the field of vision the angle between the two axes is a constant; thereby differing materially from the forms of squint due to muscular paralysis and from those other cases in which the movement of one of the eyes is impaired by the presence of an orbital growth.

Treatment of convergent concomitant strabismus as it occurs in young children has a twofold object—namely, (*a*) the functional development of the squinting eye both as regards visual acuteness and as regards binocular vision; (*b*) the removal of an obvious disfigurement.

To a considerable extent treatment should be determined by the age of the patient and the time which has been allowed to pass from the first appearance of the squint. When the condition supervenes in early childhood, say before the patient attains 3 years of age, immediate treatment is urgently required, for if the eye be allowed to squint for a considerable time amblyopia is definitely and permanently established. The delay of a few months inevitably means that the eye is rendered permanently amblyopic. Such patients form an important group which should receive very special attention.

If the onset of true strabismus does not take place till the fifth year or later, it is generally found, if the eyes be otherwise healthy, that each eye is possessed of good visual acuteness. The cases forming this group are few; they border very closely on esophoria, and treatment has

for its object the establishment or restoration of binocular vision, and sometimes, although infrequently, the removal of a disfigurement.

In addition to these two well defined groups, a third must be mentioned. Sometimes, even in cases in which the defect has begun in the first years of life, each eye is found to have excellent visual acuteness. I have always found that from its onset the strabismus has in such cases been alternating. At times the young patient was seen to be using the right eye for fixation and at other times the left. When that has been the case the function of each eye has been developed, and in each the vision is satisfactory. The treatment applicable here is precisely the same as for the second of the above mentioned groups (alternating convergent strabismus).

The first class of cases is of extreme importance, for, if there be any carelessness in treatment, permanent amblyopia will be established and the value of the eye will be very much reduced. In my opinion the first essential is to cause the young patient to use the squinting eye for general fixation. If this be done its function will become developed, and it will become and remain a good eye. The best method of accomplishing this is to throw the non-squinting eye out of action by mydriasis, so that the small child is compelled to use the squinting eye for fixation. As a rule it suffices to place a few drops of a 1 per cent. solution of atropine sulphate in the conjunctival sac of the non-squinting eye once every second day. When this treatment is followed for some time it is found that the little patient now uses the eye which originally was the squinting eye for purposes of fixation, and that the other eye, which at first was straight, is apparently affected with strabismus.

When the fixation changes from one eye to the other I always feel satisfied, for then I am sure that the function of the eye is developing and that ultimately both eyes will be possessed of good visual acuteness. After the change has taken place I continue the same treatment for a month or even six weeks so as to establish the function of fixation in the eye which at first appeared to be the one affected. Sometimes, although rarely, this treatment suffices to remove the squint, so that both eyes appear to be used for fixation. In the majority of cases, however, at the end of the time indicated, the eye which originally deviated, and which will henceforth be called the eye A, is used for fixation; whilst the other, which hereafter will be called the eye B, deviates inwards, and that to the same extent that A did when the patient was first seen. There is now the fear that the functional development of the eye B will be arrested and that it may become permanently amblyopic. The treatment is therefore reversed and the mydriatic is applied to the eye A and is so applied till the eye B again becomes straight. When this takes place the eye A may remain straight; if it does the mydriatic should be used to A very sparingly, perhaps only once in ten days, and should be stopped altogether if the eyes remain apparently without convergence for distant fixation.

So long as there is any convergence I use the mydriatic alternately in the manner described, and thus ultimately secure the functional development of each eye, and get in each good visual acuteness. The use of mydriatics is much to be preferred to the covering of one eye with a pad or a bandage, for if the child be not under the care of a trustworthy nurse it will remove the covering altogether. A bandage is too insecure unless it be carefully attended to by a competent nurse. The primary essential in the treatment of a young child afflicted with squint is to secure the development of good visual acuteness in each eye. If that be not accomplished then unilateral amblyopia becomes established and the affected eye is permanently impaired as an organ of vision.

After the originally squinting eye, A, becomes the eye used for fixation I allow it to be used for that purpose for at least a month or even for two months, although B is convergent for distant fixation. At the end of that time I begin to use the mydriatic to A till B becomes the fixing eye, and thus alternate the use of the mydriatic for a year or a year and a half unless in the meantime the strabismus has disappeared. Again, I say that at this stage the primary object is the development of visual acuteness in each eye.

Spectacles should be prescribed as soon as possible. In very young children errors of refraction cannot be measured with any degree of accuracy, and in addition glasses cannot be worn. This is not so serious a matter as might be thought. Clinical experience daily shows that children or even young adults who have never suffered from strabismus may have a very considerable amount of uncorrected hypermetropia and at the same time have excellent visual acuteness. The uncorrected defect has not in such circumstances prevented the development of good acuity. It is not uncommon to find children with 3 or 4 diopters of hypermetropia who nevertheless have standard vision when tested either by the types of Snellen or of Landolt. I have known a lad 16 years of age with 5 diopters of hypermetropia and full acuteness of vision in each eye. So long as an individual has a range of accommodation sufficient to correct the hypermetropic error such a result need cause no surprise.

For these reasons I delay ordering correcting glasses till measurements can be made with some approximation to accuracy and till the patient is sufficiently advanced as to be able to wear glasses. So long as I know that each eye is possessed of good visual acuteness—a function which is never lost—I am in no hurry to prescribe glasses till it can be done in a satisfactory manner.

Similar considerations determine for me the question of operation. If each eye has by the treatment here described obtained good vision, there is no particular hurry. Such vision is permanent unless some other untoward event occur. If permanent amblyopia is established in one eye, or is in the process of making, it is not likely that any operation will be a remedy. My own experience may be unfortunate, but I have not found that operation for convergent strabismus is successful in such circumstances. Within a few weeks of the operation the deviation will be found to have returned. It is quite different, however, when each eye is possessed of good visual acuteness and the patient has attained such an age as to be capable of receiving benefit from orthoptic treatment.

Probably the best apparatus for orthoptic treatment is the very ingenious amblyoscope devised by Mr. Claud Worth. There are numerous pictures suitable for stereoscopic combination, all well arranged and suitable for the purpose; but of these, two sets are of special interest. The first consists of a parrot in front of one eye and a cage in front of the other. The young patient is first of all exercised in seeing the parrot and the cage simultaneously. As soon as that is accomplished the patient is directed to adjust the instrument so as to bring the parrot into the cage. This simple exercise must be continued for some days till the result is obtained without any difficulty. To ease the monotony of the process, some of the other designs sent with the instrument can be substituted. These exercises do not to any extent promote the awakening of the function of perspective, at least not so well as the two which I consider of special value for this purpose. In these there is placed before each eye two circles which are not, as seen singly, concentric nor of the same size. On each side the larger circle contains the smaller eccentric circle. When seen with the amblyoscope the original four circles (two before each eye) become blended into two—namely, a larger outer circle and a smaller inner circle. In addition they are now found to be quite concentric and the smaller to appear either nearer to or farther away from the observer than the larger.

When the patient has reached such an age as to be capable of this training, then, if it be necessary, operation should be performed, preferably by double advancement as recommended by Landolt. As soon as possible after the operation the patient, wearing his correction for any existing ametropia, should resume the exercises with the amblyoscope.

If the concomitant convergent squint does not set in till the age of 5 or 6, or if in earlier life the affection has been alternating, then each eye is found to be possessed of good visual acuteness. Here all that is necessary is to advance each external rectus and to begin training with Mr. Worth's amblyoscope or other reliable form of stereoscope.

HYPOGLYCAEMIA: WITH NOTES ON TWO CASES.

BY

H. S. PEMBERTON, M.B., M.R.C.P.,

PHYSICIAN TO THE DAVID LEWIS NORTHERN HOSPITAL, LIVERPOOL; CONSULTING PHYSICIAN, LIVERPOOL CANCER AND SKIN HOSPITAL.

THE sinking of the blood sugar level to a point at which symptoms appear may contribute to the clinical features of disease more largely than has perhaps been recognized. Whether hypoglycaemia denotes merely a fall below the normal fasting level or a fall associated with characteristic symptoms, it certainly occurs in many morbid or experimental conditions, some of which are set out below. It is of interest to speculate upon what part such a state plays in the symptomatology of the clinical counterparts to some of these conditions—for example, in Addison's disease or cholaemia. An examination of the literature makes it clear that hypoglycaemia may be associated with many diverse conditions, which I have attempted to classify as follows:

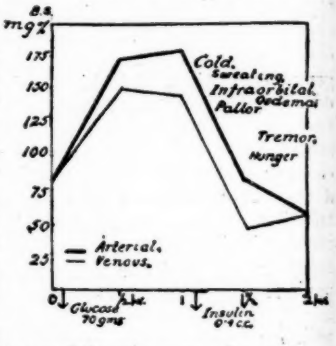
1. Hypoglycaemia follows the hyperglycaemia induced by glucose, fructose, galactose, starch, and adrenaline (Liefman and Stern,[1] Maclean and de Wesselow,[2] Frank,[3] Foster[4]), but not after the hyperglycaemia of ether, which appears to be maintained (Pemberton and Cunningham[5]).
2. It also occurs in many lesions of the liver: such as removal in dogs (Mann and Magath[6]); parenchymatous changes caused by chloroform, salvarsan, and the fungus *Agaricus bulbosus* (Steinbrinck[7]), by phosphorus (Frank and Isaac[8]), and by hydrazine (Underhill[9]), and in the presumed circulatory changes which follow the intravenous injection of albumose and peptone in dogs (McGuignan and Ross[10]). In comment upon the statements of Steinbrinck, it may be pointed out that in the toxic jaundice of patients undergoing antisyphilitic treatment (arsenobenzol) Bailey and MacKay[11] found a normal fasting blood sugar; further, Joslin[12] states that the anaesthetic use of chloroform is accompanied by hyperglycaemia.
3. It may follow high section of the cord or sections of the nervous connexions of the adrenals (Falta[13]).
4. Various adrenal lesions are associated with hypoglycaemia: complete removal (Biery and Malloizel[14]); adrenal insufficiency (Mayer[15]); Addison's disease (Porges[16]).
5. It may occur in various states: such as alkalosis (Cammidge and Howard[17]); hypocalcaemia (Underhill,[18] Cammidge and Howard[19]); following the intravenous injection of sodium bicarbonate, which also decreases adrenaline hyperglycaemia (Underhill[20]).
6. Lastly, there are insulin and the insulin-like substances, all of which can produce hypoglycaemia. The insulin-like substances have been derived from clams, the cortical layer of oats, potatoes, rice, wheat, beet, and celery[21]; and recently Dubin and Corbitt[22] have succeeded in separating the hypoglycaemia-producing principles from the hyperglycaemia-producing principles in cabbage, lettuce, celery, and spinach.

The symptoms of hypoglycaemia occur at varying levels of the blood sugar, so that the same level in different animals and individuals may be associated with different features. In dogs, Mann and Magath[6] produced hypoglycaemic symptoms when the blood sugar had fallen to 45 mg. per cent. as a result of removal of the liver; in man, Banting, Campbell, and Fletcher[23] record a blood sugar of 52 mg. per cent., which was followed by uncontrollable hunger; Sevringhaus, Kirk, and Heath[24] state that symptoms appear at concentrations of 40 to 65 mg. per cent.; according to Macleod,[25] when the blood sugar reaches 75 mg. per cent. the patient experiences extreme hunger and a sense of fatigue; whilst in the case recorded below the venous blood sugar reached 48 mg. per cent. (and may possibly have fallen lower) without any marked symptoms being produced.

The fall in blood sugar, in causing symptoms which vary from slight vasomotor effects to convulsions comparable to those of toxic states, would appear to operate primarily upon pontine or medullary centres. Olmsted and Logan[26] found no symptoms in spinal cats even when the blood sugar had fallen below the convulsive level; whereas in decerebrate animals typical symptoms developed provided that the pituitary body had been removed. Dickson and others[27] suggest that, in insulin hypoglycaemia, abnormal metabolites appear; these bodies require oxidation, and thereby the respiratory centre is stimulated; they ascribe the muscular twitchings to cerebellar or mid-brain stimulation.

The symptoms of hypoglycaemia quickly disappear when the blood sugar again rises. Among substances which cause this rise Noble and Macleod[28] regard glucose as pre-eminent; other sugars, such as mannose, galactose, and laevulose, have a certain value, whilst the pentoses, cane-sugar, and lactose appear to be inert. Adrenaline would appear to act as a physiological antagonist in cases of insulin hypoglycaemia, whilst in other cases its antidoting action is probably due directly to glycogenolysis; so that its effect will vary according to the amount of glycogen present in the liver and muscles. In hypoglycaemic states with mild symptoms the polysaccharides themselves appear to be efficient, whilst in severe cases with convulsions all known antidoting agents seem to lose some of their usual potency. This statement may perhaps be illustrated by a description of two cases, one mild and one severe.

The first case was experimentally induced in a normal man by fasting for five hours, feeding with glucose, and then, just as the normal hyperglycaemic curve was beginning to fall, exhibiting insulin. The lowest recorded level of blood sugar was 48 mg. per cent. (see chart), but as the preliminary vasomotor symptoms began before this, the level may have sunk lower still. Among the symptoms and signs infra-orbital oedema was of interest; it is perhaps comparable to similar oedema observed in anaphylactic states and in one case of presumed adrenal insufficiency. The hunger, which all observers record, may be similar to that of hyperglycaemia, inasmuch as in both states the tissues would appear to be starved of glucose. Shortly after the last estimation of blood sugar a meal of bread and jam was taken; all the symptoms quickly disappeared, only to reappear an hour later in a milder form. This latter observation has also been made by Sevringhaus, Kirk, and Heath,[24] and would appear to be due to a secondary hypoglycaemia following a hyperglycaemia of the type recorded above. The second case, which was fatal, occurred in a man, aged 30, suffering from diabetes mellitus, who had been under my observation for two years; he also had pulmonary tuberculosis.



He was readmitted to hospital on March 29th, 1924, in a very poor condition—16 per cent. of glucose in his urine, a blood sugar of 0.357 mg. per cent., marked acidosis, and weighing 91 lb. As the table given below shows, a very definite improvement was obtained by April 4th, and on April 5th his diet and insulin dosage were both increased. On the night of April 6th, however, he became rigid with a marked opisthotonos, which lasted five minutes, after which he vomited; his temperature rose to 101° F. He was given 2 oz. of glucose by the mouth, after which he went to sleep. No more insulin was given, but his carbohydrate intake was again increased. On April 7th he was quiet, but early on the morning of April 8th he again became excited and threw his pillows about; 10 c.cm. of 5 per cent. glucose were given intravenously and glucose feeding by mouth was attempted; adrenaline was given hypodermically in 0.5 c.cm. doses every hour. By 8.45 a.m. he was in a flaccid, semi-comatose condition, temperature 100.6°, pulse 72, respirations 20; his skin was clammy, the eyeballs showed a pendular movement, and the corneal and abdominal reflexes were absent; the knee-jerks were present, and he exhibited double ankle clonus and plantar reflexes of the extensor type. Blood taken at 11.30 a.m. contained 27 mg. per cent. of glucose. At 1.15 p.m. the pulse was 108, and although the pendular movements of the eyeballs had ceased, ankle clonus and extensor toe were still present. He died a few minutes later.

Day.	Diet.	Blood Sugar.	CO_2 (vols. per cent.).	Insulin.
April 2	Protein ... 60 grams Fat ... ... 30 ,, Carbohydrate 15 ,,	0.143 mg. per cent.	57	0.5 c.cm.
April 4	——	0.090 mg. per cent.	51	0.5 c.cm.
April 5	Protein ... 90 grams Fat ... ... 60 ,, Carbohydrate 30 ,,	—	--	1 c.cm.
April 7	——	—	—	None.
April 8	——	0.027 mg. per cent.	54	None.

No *post-mortem* examination was possible until the next day, when the following changes were found.

Lungs.—The right lung was studded with caseous tuberculous masses, some an inch in diameter. There were pleural adhesions at both apices.

Heart.—Weight 7 oz. No macroscopic changes were seen.

Liver and Pancreas.—No naked-eye changes were seen, but subsequent microscopic examination of the pancreas showed extensive fibrosis in which no islet tissue was visible. Other ductless glands showed no changes.

Glycogen Contents.—The amount of glycogen was determined in the heart, liver, and muscles by Pflüger's method rather more than twelve hours after death had taken place. Considering the glycogenolysis that must have taken place in this time and the fact that he was a severe diabetic, the figures of 0.014 per cent. for muscle, of 0.028 per cent. for myocardium, and of 0.04 per cent. for liver are perhaps suggestive of what happens to circulating glucose in insulin hypoglycaemia.

Brain.—This was definitely "wet"; the pia mater showed areas of milkiness, but there was no evidence of basal meningitis.

In making this record of the two cases I am greatly indebted to my colleague, Dr. L. Cunningham, with whom all the biochemical work was done; also to my late house-physician, Dr. A. J. Hawe, who made many of the observations in the fatal case.

REFERENCES.

[1] Liefman and Stern: *Biochem. Zeit.*, 1, 1905, 299. [2] Maclean, H., and de Wesselow, O. L. V.: *Quart. Journ. Med.*, 1921, 14, 103. [3] Frank, E.: *Zeit. Physiol. Chem.*, 1910-11, 70, 291. [4] Foster, G. L.: *Journ. Biol. Chem.*, 1923, 55, 291-303. [5] Pemberton, H. S., and Cunningham, L.: *Lancet*, September 27th, 1924, 647. [6] Mann and Magath: *Amer. Journ. Physiol.*, 1921, 4, 285. [7] Steinbrinck, W.: *Klin. Woch.*, 1924, 3, 23, 1029. [8] and [9] Quoted by McGuignan and Ross, loc. cit. [10] McGuignan, H., and Ross, E. L.: *Journ. Biol. Chem.*, 1915, 22, 417. [11] Bailey, C. V., and MacKay, A.: *Arch. Int. Med.*, 1920, 25, 646. [12] Joslin, E. P.: *Treatment of Diabetes Mellitus*, 1924, 620. [13] Falta, W.: Quoted by Cammidge, *Glycosuria and Allied Conditions*, 1913, 144. [14] Biery and Malloizel: *Compt. Rend. Soc. Biol.*, 1908, 2, 232. [15] Mayer: Ibid., 1906. [16] Porges: Quoted by McGuignan and Ross, loc. cit. [17] Cammidge, P. J., and Howard, H. A. H.: *New Views on Diabetes Mellitus*, 1923, 85. [18] Underhill, F. P.: *Journ. Biol. Chem.*, 1916, 25, 447. [19] Cammidge and Howard: Loc. cit., p. 87. [20] Underhill, F. P.: *Journ. Biol. Chem.*, 1916, 25, 463. [21] Quoted by Dubin, H. E., and Corbitt, H. B.: *Journ. Metab. Research*, 1923, 4, 89. [22] Dubin and Corbitt: Loc. cit. [23] Banting, F. G., Campbell, W. R., and Fletcher, A. A.: BRITISH MEDICAL JOURNAL, January 6th, 1923, p. 8. [24] Sevringhaus, E. L., Kirk, E., and Heath, H. J.: *Amer. Journ. Med. Sci.*, 1923, 5, 620. [25] Macleod, J. J. R.: *Physiol. Reviews*, 4, 1, 21-66. [26] Olmsted, J. M. D., and Logan, H. D.: *Amer. Journ. Physiol.*, 1923, 66, 437. [27] Dickson, B. R., Eadie, G. S., Macleod, J. J. R., and Pember, F. R.: *Quart. Journ. Exper. Physiol.*, April, 1924, 123. [28] Macleod, J. J. R.: Loc. cit.

CONGENITAL CYSTIC DISEASE OF THE LUNGS.

BY

SYDNEY SMITH, M.D., D.P.H.,

PRINCIPAL MEDICO-LEGAL EXPERT, EGYPTIAN GOVERNMENT.

A NEWLY born child was found dead in circumstances which suggested infanticide, and was submitted to me for examination.

The body was that of a child of about eight months' intrauterine age. It was free from marks of violence. Both lungs were in an apparently foetal condition and sank on being placed in water; both were in a state of advanced cystic degeneration (Fig. 1). Cysts varying in size from a pea to the head of a pin were distributed throughout the whole of the lung tissue. The larger cysts were found towards the free surface. A number of cysts abutted on the pleura, but there were no pleural adhesions.

FIG. Left Lung.

On microscopical examination no air cells or vesicles could be made out, the lungs being composed of unexpanded tissue and cysts. The cysts were smooth-walled and lined in certain cases with flattened cells. There was no trace of cubical epithelium lining the cavities nor of muscular or elastic fibres in the walls. Here and there the cavities were filled with a mucoid- or colloid-looking material. Numbers of microscopic cysts could be observed immediately under the pleural surface. Numerous bronchi were seen filled with cast-off cubical and cylindrical epithelium and other debris. A certain amount of cellular infiltration could be observed around the bronchi and there were numerous small haemorrhagic foci in the lung tissue.

Cystic degeneration in both lungs of a newly born child is very rare, and the reason for its occurrence is rather obscure. Bronchiectasis occurring after birth is usually attributed to weakening of the walls of the bronchi by disease, whereby they are unable to resist the air pressure in fits of coughing. Barty King considers that pleural adhesions also play an important part in producing the initial dilatation.

In this case air pressure cannot be considered, for the child had never breathed, nor were there any pleural adhesions, and the cause of the condition must be sought elsewhere.

In the developing lung the bronchioles terminate in a bulbous extremity into which groups of atria open. Groups of air cells or alveoli which form the air sacs open into these atria. The alveoli are not formed until about the sixth month of intrauterine life, and before respiration commences they are lined with cubical epithelium which gradually becomes flattened when respiration occurs.

In our specimen the microscopical state of the tissues indicates that the cysts have not been recently formed, and their origin from the alveoli cannot be admitted in view of the late development of the alveoli. They must therefore be due to dilatation of the atria, infundibula, or bronchioles.

The absence of columnar or cubical epithelium in even the smallest cysts and of any trace of muscular or elastic tissue in their walls tends to exclude an origin from bronchi or bronchioles. Such a condition is, however, found in ordinary bronchiectasis, where the pressure of the retained secretion causes flattening of the cubical or cylindrical epithelium, while the stretching causes atrophy and disappearance of the muscular fibres. It would be difficult, therefore, to be certain from the histological disposition of the tissues whether we are dealing with a dilated bronchus or a dilated infundibulum, but the appearance of the smaller cysts particularly does not resemble bronchial dilatation. The cysts are found immediately under the pleura, and as the terminations of the bronchioles do not abut on the pleural surface this tends to exclude an infundibular origin. The condition is therefore a congenital cystic degeneration of both lungs caused by the dilatation of the atria.

The presence of mucoid or colloid matter in many of the cysts indicates that secretion from their walls is fairly active, and if, as is suggested by the microscopical sections, there was some inflammation of the bronchioles which caused blocking of their lumen, this would account for the retention of the secretion and dilatation from the consequent pressure.

PNEUMOCOCCAL WOUND INFECTION:

NOTES ON TWO CASES.

BY

BERTRAM MUIR, M.B., B.S., F.R.C.S.,

HONORARY SURGEON, SHANTUNG ROAD HOSPITAL, SHANGHAI.

CASES of suppuration due to the pneumococcus in regions other than the upper and lower respiratory tracts and adjacent sinuses, the pericardium and peritoneum, the meninges, and the middle ear, are sufficiently rare to merit publication, especially when the infection is apparently primary and not blood-borne. Even the subcutaneous injection of a virulent pneumococcal culture in guinea-pigs causes death by septicaemia, with comparatively little local reaction, although a local abscess, with a characteristic fibrinous exudate, sometimes forms. The two cases here described were both "traversing" bullet wounds, and in both the primary infection appeared to be pneumococcal.

CASE I.—*Pneumococcal Infection of Diffuse Traumatic Aneurysm of the Axilla.*

A Chinese soldier, aged 35, was shot through the right subclavicular region in November, 1924. The bullet entered anteriorly and traversed the pectoralis major, injured the third part of the axillary artery, and passed out through the teres major muscle. A tense pulsating swelling immediately formed in the right axilla, and he lost the use of the right hand, although no sensory disturbance was noticed, and very little haemorrhage occurred from either wound. After a few weeks the swelling increased so much that he had to maintain the arm in a position of marked abduction.

Six weeks later the swelling became very painful, and the

overlying skin brawny-red and hot, and for the first time he felt ill and presented himself for treatment. When admitted the temperature was 103° and the right radial pulse was practically absent; from the clinical signs of the axillary swelling a diagnosis of diffuse aneurysm of the axillary artery was made. As it was obviously infected and seemed liable to rupture at any moment, surgical treatment was urgent.

Operation.

On January 18th I ligatured the third part of the right subclavian as a preliminary step, and then explored the axillary swelling. A longitudinal incision was made along the course of the artery, the pectoral tendons were incised, and a thick fibrous sac revealed, formed by the incorporated axillary fascia and costo-coracoid membrane anteriorly. This was incised, and yellow purulent fibrinous clot turned out. Brisk haemorrhage occurred from a hole in the third part of the artery, on the inner and lower aspect, which appeared to be the result of the original injury. The axillary vein and nerves were matted together in the outer wall of the sac, but eventually I succeeded in ligaturing the vessel above and below the openings, and the haemorrhage ceased. The remaining purulent clot was turned out, the pectoral tendons sutured, and drainage tubes inserted. A culture of the pus showed a pure pneumococcal growth.

Two days later it became evident that infection had spread along the course of the brachial artery to the antecubital fossa and along the ulnar nerve to the olecranon process. The abscesses were incised at these points and drained; culture again yielded pneumococci. The patient made a slow but uneventful convalescence.

CASE II.—*Pneumococcal Infection of Left Supraclavicular Region.*

A Chinaman received a revolver bullet in the left supraclavicular region on February 21st and was admitted to hospital three days later. A small round wound through the clavicular head of the left sterno-mastoid, just above the clavicle, was discharging pus. A skiagram showed the bullet to be lodged in front of the neck of the first rib.

Operation.

On February 28th I turned back an angular supraclavicular flap and explored the left subclavian triangle. The bullet was found lying on the neck of the first rib, between the fibres of the scalenus medius and longus colli muscles, beneath the lower fibres of the brachial plexus. The pleural dome and lung apex were uninjured. The bullet was removed without difficulty and drainage established. Three days later the temperature rose to 103°, and a reddened fluctuating swelling was observed in the delto-pectoral region. On incision this was found to extend deeply to the axillary sheath, and a quantity of yellow fibrinous pus was evacuated, which on culture yielded pneumococci. The patient made an uneventful convalescence.

These cases are only of scientific interest from the infection standpoint, as pneumococcal infection of wounds is very rare; indeed, I can find no recorded cases in a fairly extensive perusal of current medical literature. Both lesions were in the vicinity of the thorax, but even in Case II there was no lesion of the lung or pleura. Possibly the infection was from the patient's clothing, which in each case had been traversed by the bullet and was filthy. Another interesting fact was that infection spread along the vascular sheath in each case, without any marked local reaction after operation. In each case drainage and eusol irrigation proved a satisfactory method of treatment for the secondary abscesses.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

PERFORATION OF THE JEJUNUM DURING AN ATTACK OF LOBAR PNEUMONIA: LAPAROTOMY: RECOVERY.

PERFORATION of the jejunum (apart from injury) is an exceedingly rare condition; I can find no record of a case similar to that about to be described.

Mr. B. B., aged 24, had a "chronic appendix" removed through a gridiron incision in April, 1923. He made a rapid convalescence, and remained in perfect health until November, 1924, when he was seized with acute pains in the chest. The condition was diagnosed and treated as lobar pneumonia. The right lung was consolidated, and his temperature, after remaining consistently high for six days, gradually crept down towards normal. On the seventh day after the onset of his illness he had severe abdominal pains, the abdomen became distended, and vomiting was a troublesome feature. He had intractable diarrhoea, although previously he was constipated. I examined the patient three days after the beginning of the abdominal symptoms. He was acutely ill, semi-delirious, and emaciated. The temperature was then 101° F., pulse 120, respirations 32. There were signs of consolidation of the right lower lobe of his lung. The abdomen was ballooned, immobile, rigid, tender, and tympanitic. The area of liver dullness was not appreciably diminished, and shifting dullness could be detected in the flanks. As the abdominal muscles were on guard, no mass or viscus could be palpated. Apart from some tenderness of the pelvic peritoneum no other abnormality could be detected on rectal examination.

Operation.

Although the patient seemed moribund immediate coeliotomy was decided upon. He was anaesthetized with gas and ether, and 6 c.cm. of stovaine (light solution) was injected into the lumbar spinal theca. The abdomen was explored through a right para-median incision which displaced the rectus muscle outwards. On opening the peritoneal cavity a large quantity of gas and dark-brown fluid escaped through the wound. As the abdominal contents were bathed in fluid, and the intestines grossly distended and glued together in places, the exploration was conducted under the greatest difficulties. The stomach, duodenum, and gall bladder were normal, but about 12 inches from the duodeno-jejunal flexure a circular perforation, a quarter of an inch in diameter and surrounded by a narrow strip of yellow necrotic tissue, was found on the ante-mesenteric border of the distended jejunum. There was no evidence of any induration or scarring around the perforated zone which would be suggestive of a previous chronic ulcerated condition of the gut. The breach in the jejunum was invaginated by two purse-string sutures of fine catgut and a protective omental pad applied to the site. About 6 inches further down the gut there was a circular gangrenous patch which was similarly invaginated and guarded with an omental pad. After this procedure no further examinations of the intestine were possible owing to the patient's critical condition; and, after providing for drainage of the pelvis and right iliac fossa, the abdominal wound was closed in three layers.

The patient rallied splendidly after the operation. He was able to return home and resume light work five weeks after the exploration. When seen some three months after the operation he reported himself as being quite fit and sound.

It is to be presumed that the gangrenous patch in the jejunum and the perforation were due to septic infarcts; yet it is interesting to note that there was no evidence of infarction elsewhere.

RODNEY MAINGOT, F.R.C.S.,
Surgeon, Royal Waterloo Hospital, London.

FRACTURE OF BOTH PATELLAE BY MUSCULAR ACTION.

THE following case is thought worthy of record. The patient was under the care of Dr. R. S. Dickson of Palmer's Green, at whose request I operated, and to whom I am indebted for the following notes.

R. C., male, aged 20, was admitted to the Passmore Edwards Hospital, Wood Green, on September 8th, 1923, with the history that while playing tennis on that date "he had jumped upwards suddenly between 2 and 3 feet to take a high ball at the net," when something snapped in both knees and he fell to the ground.

Skiagram, L. knee.

Skiagram, R. knee.

On examination he was found to have fractured both patellae transversely. On the left side there was considerable separation of the fragments. On the right side the lower fragment was small, and there was less separation. On September 18th both knees were subjected to operation and the fragments secured in apposition with silver wire.

Convalescence was uneventful, and he resumed business on November 15th, 1923.

That both patellae should give way, as in this case, must be unusual. We were unable to find any evidence of abnormality in the osseous system. The patient was an exceedingly athletic and well developed young man, with a sound family and medical history. Moreover, the bones at operation were quite normal in texture.

London, W. T. TWISTINGTON HIGGINS, F.R.C.S.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

KENSINGTON DIVISION.

MEDICAL APHORISMS.

AT a meeting of the Kensington Division held on April 23rd, with Dr. WALTER E. FRY in the chair, an address was given by Dr. SEYMOUR TAYLOR, consulting physician to the West London Hospital, entitled "Some medical aphorisms."

The Abdomen.

(1) A tuberculous abdominal cavity in a child is best left alone so far as surgery is concerned. Nature often effects a cure under the influence of good food and sunshine. Most of you will agree with this; but it is only seniors like myself who have actual experience of such patients surviving, not only to maturity, but even to the verge of old age (60 to 65).

(2) The abdominal cavity is more susceptible to shock than is any other part of the body. Therefore in all abdominal operations there should be as little handling and exposure of the viscera and intestines as possible. This, again, will meet with recognized approval by all. But I do find, in this age of anaesthesia, when quickness of manipulation is not so valuable a factor as it was in former days, that some younger surgeons appear to dally somewhat when performing a laparotomy. Short of want of due care and precautions, the operation should be completed as quickly as possible. A distinguished soldier noticed that many of his men were put out of action by fragments of shell which had struck, but not perforated, the abdominal walls, whilst other men advanced to the attack for considerable distances, although they had sustained perforating bullet wounds of the thorax. The explanation which I afforded him was on the above lines.

(3) Bladder syncope is not so freely known or recognized as it should be. I have notes of seven patients, all males, who have suddenly fainted at the termination of the act of micturition on rising. The explanation which I advance for this alarming event is that the venous tension in the inferior cava and abdominal veins in general is suddenly relaxed by removal of the pressure of a hollow, but fluid-containing, viscus.

(4) In prostatic enlargement there is always a large amount of residual urine left over even after the bladder catheter has been passed. This residual urine decomposes, and may become the starting point of bacilluria. In many cases this residual urine may to a large extent be evacuated by making the patient micturate when lying in a prone position on a couch in which a utensil is fitted under an aperture on the under surface. If the legs and buttocks are raised above the level the relief is still more complete.

(5) An appendix abscess which has escaped diagnosis may rupture into any neighbouring cavity or hollow viscus, or by numerous sinuses in the loin or the front abdominal wall. I have recently seen a case in which laparotomy was about to be performed, and in which the abscess tumour suddenly disappeared, having discharged itself into the ascending colon. Microscopical examination of the faeces proved this diagnosis to be correct. Therefore the existence of a sinus in the abdominal wall should always suggest the possibility of its being connected with an appendix abscess.

(6) In nearly all cases of diseases of the anus and rectum there is marked anxiety and distress, compelling the patient to pay large fees in order to obtain the best surgical advice. I have not noticed this mental distress so well marked in any other form of disease.

(7) It is well known that in malignant disease, whether of the abdominal cavity or of any organ, the downward curve of the patient's vitality is steady, regular, and uninterrupted. But it is not sufficiently recognized that the final stage comes very often with startling suddenness. The patient is, or was, to all appearances no worse to-day than he (or she) was a week ago, when we are surprised next morning to have a message that death had occurred during the night. I have not infrequently noted this.

Heart and Circulatory System.

(1) As a rule, all diastolic murmurs are more serious than systolic murmurs. This is, I believe, accepted by most clinicians. Aortic regurgitation is a dangerous condition by itself, and, as is well known, it may terminate suddenly without any apparent increase of symptoms. But, in my experience, now obtained from noting many cases, the patient is more comfortable, and even able to perform fairly arduous muscular exertion, if in addition to the aortic insufficiency he has also mitral regurgitation, thus affording a safety-valve overflow from a labouring left ventricle. The tricuspid safety-valve action on the right side of the heart is one of the first lessons we learn in our physiological textbooks.

(2) In aneurysm of the aorta it is the saccular form which ruptures and destroys life. The fusiform aneurysm is more responsible for death by prolonged pressure on nerves, veins, and other neighbouring structures. I formed this opinion after many years' experience in the *post-mortem* room.

(3) Given a valvular lesion of the heart, it is better that the murmur should be a loud one, as it is well to bear in mind that the patient dies not so much from a roughened or incompetent valve as from failure of the muscular driving power of the auricle or the ventricle. A loud murmur, therefore, is indicative that the heart muscle is still vigorous, and is not in itself a cause for undue alarm.

Drugs.

(1) As a rule the indications for the administration of opium outweigh those against it. I have known patients who have swallowed fairly large doses of laudanum with good effects, even when it was deemed unwise to allow a small dose.

(2) Small doses of morphine will cure whooping-cough in children much more speedily than any other remedy. It is only a matter of dosage, even when treating infants. Osler is reported to have said that if he had any drug to prescribe for a child with whooping-cough he should select paregoric.

General.

(1) The skin and muscles in chronic alcoholics, especially women, are hypersensitive to cold and pressure. A cold hand or the pressure of a stethoscope is immediately resented, and thus often confirms one's diagnosis. We should bear in mind that peripheral neuritis is fairly common in alcoholic women.

(2) I have never satisfied myself that I have ever seen a case of vicarious menstruation. I doubt if such a phenomenon ever occurs.

(3) Arcus senilis is by no means an indication of premature old age. I have observed it in young men and women between 30 and 40 years of age who yet lived to be septuagenarians. A dripping nose, shedding a clear fluid, is in my experience a much surer sign of senility.

Reports of Societies.

FIBROCYSTIC DISEASE OF THE HUMERUS.

AT a meeting of the Bristol Medico-Chirurgical Society held on May 13th, the President, Dr. J. O. SYMES, in the chair, Mr. A. W. ADAMS read a paper on a case of fibrocystic disease of the humerus. Mr. Adams introduced the subject by slides showing the process of ossification at the epiphyseal line of long bones, a region particularly liable to disorders affecting growth as well as to infections. Diseases of the osseous skeleton were then classified by age periods, and also by etiological factors. Twenty-eight slides were shown to illustrate achondroplasia, rickets, multiple exostoses, septic infection of bone, syphilis, tuberculosis, osteitis deformans, multiple enchondromata, and primary and secondary neoplasms. Mr. Adams pointed out that quite good union might occur in a bone which had suffered a spontaneous fracture from neoplastic metastasis, and advised treatment of such fractures on the usual lines. In the diagnosis of primary neoplasm of bone neither skiagraphic nor pathological evidence was so satisfactory as clinical experience. An illustration of one case of osteogenesis imperfecta and a skiagram of another were shown. A case of osteitis deformans observed over a period of five years was shown in which the tibia only was affected; the softening and bending were noted, and also the tendency for arrest of the process after a time. Attention was called to the frequency of sarcoma in such bones as a late phenomenon. The literature of fibrocystic disease of bones was reviewed; this disease often affected one bone only. The comparative frequency of the affection being localized in certain positions was observed, such positions being the upper end of the humerus, either end of the femur, and the upper end of the tibia. Mr. Adams described his case, first seen sixteen months previously; the disease had occurred in a boy at the upper end of the humerus; spontaneous resolution had occurred after three fractures. No treatment beyond splinting had been attempted. Mr. Adams thought such a course in this disease had not previously been described. He put forward the view that

the disease tended to occur at joints allowing of rotatory movement, and suggested that repeated rotatory stresses might be an element in its etiology. An endocrine factor had also been suggested.

Dr. T. C. BRENTNALL doubted whether rotatory strains were greater at ball and socket than at hinge joints. He thought that such joints as the shoulder, where rotation was a normal movement, suffered less trauma from rotatory stresses than hinge joints.

Mr. A. R. SHORT mentioned another case of fibrocystic disease in which both the tibia and the femur were affected.

Mr. C. A. MOORE referred to a case under his own care in which pathological reports from different sources on the same piece of tissue had varied considerably. He agreed that spontaneous fractures due to neoplastic metastasis might be successfully treated on ordinary lines, and mentioned a case of simultaneous fracture of both femora treated in this way.

VITAMIN VALUE OF MILK.

AT a meeting of the Section of Anatomy and Physiology of the Royal Academy of Medicine in Ireland, held in the Royal College of Physicians on April 24th, the President, Dr. C. M. WEST, in the chair, Professor H. PRINGLE reported the results of an investigation into the vitamin values of Dublin cow's milk and of human milk, and summarized the present position regarding the occurrence of vitamins in natural foodstuffs and their importance as shown by recent work on the subject.

Professor Pringle pointed out the clinical importance of the subject. Although typical deficiency diseases were of rare occurrence in a population on a mixed dietary, yet there was growing evidence that many atrophic conditions with malnutrition and deficient growth, especially in children, were due to lack of vitamins, particularly B. The evidences of B deficiency were lack of appetite, less absorption, increased nitrogen loss, and atrophy of lymph tissues. Lack of A gave rise to increased liability to infections, eye inflammations, rheumatism, and enteritis; lack of C gave rise to modified scurvy condition; lack of X (antirachitic) caused deficient ossification and rickets. It was quite possible for a mixed diet to be deficient in vitamins though ample in other respects. A diet made up of the following foodstuffs would be deficient unless enormous quantities were eaten: sugar, rice, jam, white bread, potatoes, lard, margarine, the coarser kinds of fish, cod, haddock, lean meat, bacon. Even if butter and cheese were added there would still be a very low value of B and C. The danger of deficiency had to be guarded against particularly during lactation and infancy; the amount of vitamins in the milk varied with the diet of the mother. The results of the investigation showed the vitamin value of Dublin cow's milk to be very low, a daily minimum of 10 c.cm. being necessary to maintain growth in a rat on a vitamin-free diet; this compared with Cambridge milk 2 c.cm., Liverpool 6 c.cm., Norwegian 2 c.cm., Sydney 10 c.cm. The low vitamin value of Dublin milk was chiefly due to lack of B. The addition of butter to the diet of a rat on vitamin-free diet *plus* 10 c.cm. of milk did not produce any improvement, but the addition of 0.5 gram of yeast a day had a marked effect at once, bringing about normal growth. The value of human milk, as tested on rats, was very low, a minimum of approximately 17 c.cm. a day being necessary to maintain growth. The minimum figure for Jersey cow's milk from an animal on the grass and receiving grain in addition was 7 c.cm.; this milk had a very high cream content. Professor Pringle then showed the growth curves obtained as a result of feeding rats on a vitamin-free diet *plus* (*a*) Dublin cow's milk obtained from a local dairy, (*b*) Jersey cow's milk, and (*c*) human milk.

Determination of Cyanates in Blood.

Mr. E. G. MONTGOMERY, introduced by Dr. W. Fearon, then read a paper on the determination of cyanates in blood. He said that the occurrence of cyanic acid during the oxidative deamination of glycine, alanine, and sarcosine had been cited in support of the hypothesis that this acid was an important intermediate product in the formation of urea in the animal body. In his experiments fresh blood from the rabbit and the cat was examined for the presence of cyanate, and in each case a positive result was obtained. For the rabbit the cyanate value was found to be 0.7 mg. per 100 c.cm., and for the cat 1 mg. per 1,000 c.cm. expressed as free cyanic acid. The plasma obtained was divided into two equal portions, A and B. To B was added 0.2 gram ammonium sulphate, and both tubes were incubated for twenty-four hours; an equal volume of concentrated Tanret's reagent was then added to each, and the contents filtered. The filtrates were treated with equal volumes of glacial acetic acid and 1 c.cm. of a 10 per cent. solution of xanthydrol in methyl alcohol. After twelve hours the precipitates of dixanthyl urea were filtered off, washed, dried, and weighed, and the increase in the urea content of B gave the value of the cyanate present. A confirmatory test for cyanate was carried out on plasma after acidification by addition of decinormal sulphuric acid, which would destroy any cyanate present. No appreciable increase in urea was observed after incubation with the ammonium salt as before. By means of control experiments the limits of error were found to lie within 0.2 mg. per 100 c.cm. The occurrence of cyanic acid in plasma suggested that it was either a precursor or a product of urea formed in the organism; the available evidence pointed strongly to the former view. Its presence would explain the varying values of blood ammonia obtained by different observers, and furthermore it might play an important part in the formation of the nitrogenous substances whose origin was still obscure.

Reviews.

THE ST. ANDREWS INSTITUTE FOR CLINICAL RESEARCH.

THE distinctive aim of the St. Andrews Institute for Clinical Research, founded by the late Sir James Mackenzie, has been the study of the common diseases of the people of this country. The circumstances in which the Institute was founded, the zeal and originality of its distinguished director, and the novel methods of study which he introduced, are well known, and the progress made has been watched with keen interest, particularly by members of the profession most familiar with the difficulties of the task—namely, the general practitioners. In the introduction to the first volume of the *Reports of the St. Andrews Institute for Clinical Research*,[1] published in 1922, Sir James Mackenzie described the principles on which the work of the Institute was based, and indicated the direction in which exploration was proceeding. The contents of this volume were a part of the outcome of the first year's work at the Institute, and included two notable papers, one by Sir James Mackenzie, entitled "An address on clinical research," and the other by Dr. Andrew Rowand, recording a census of the complaints from which the sick population of St. Andrews and the surrounding districts suffered, was published under the title "The present state of medical knowledge regarding the diseases common among the people." The systematic study of the symptoms of these diseases led to the enunciation of a law governing the production of a large number of symptoms which was described in an article in this JOURNAL (1921, i, p. 147). Two of the later articles in this volume were also published in this JOURNAL, that by Professor P. T. Herring, entitled "The sensations as reflex manifestations of disease (1921, ii, p. 469), and an article by Sir James Mackenzie on "Prognosis" (1921, i, 797). In the second volume recently published the first two articles are reprints from papers published by Sir James Mackenzie in this JOURNAL, the first on "The application of the principle of the reflex arc to the interpretation of cardiac signs," and the second on "Some general principles of cellular and organic activity in relation to symptoms." The new ideas which these articles express have been studied from the physiological point of view by Professor P. T. Herring,

[1] *Reports of the St. Andrews Institute for Clinical Research.* Vols. I and II. Oxford Medical Publications. Vol. I. London: H. Frowde, and Hodder and Stoughton. 1922. (Roy. 8vo, pp. 208; 54 figures. 10s. 6d. net.) Vol. II. London: H. Milford, Oxford University Press. 1924. (Roy 8vo, pp. 190; 31 figures, 8 plates. 10s. 6d. net.)

Professor D. Waterston, and other members of the staff of the Institute who have contributed to this volume. We must mention also "A clinical study of influenza" written by Dr. J. H. P. Paton.

The regular publication of these reports is a convenience which many practitioners who are following the work of the Institute with interest will appreciate. They are valuable also because, taking them in sequence, the reader catches a glimpse of the wide outlook of this distinguished physician on the problem of human disease, and can notice how field upon field opened up before his penetrating eye.

PLASTIC AND REPARATIVE SURGERY.

THE records of cases treated by Dr. CARL BECK and published in his book on *The Crippled Hand and Arm*[2] show that he is a surgeon of resource and ingenuity, possessed of the patience necessary for the cure of contractions and defects. The conditions considered are due to abnormal development, injuries, and disease, and in most of them the chief difficulties were caused by the presence of scars, which necessitated many plastic procedures described in this book.

After two chapters on the anatomy and physiology of the parts concerned, which should scarcely be necessary for the surgeon, congenital defects and deformities are dealt with. Except in the case of webbed fingers the outlook on this class of cases is not very cheerful, although what has been called by French writers "phalangization of the metacarpals" may possibly be of value in cases of defect of phalanges only. The account of the treatment of the hand crippled by injuries involves a great many plastic procedures, including ingenious methods of reforming distorted and replacing lost finger-nails.

Dr. Beck admits that a tendency to keloid of scars is common, and a great drawback to treatment, especially after burns, but he does not offer much advice as to how it is to be prevented. Tenoplasty and nerve suture receive some notice, and the author seems to have been fortunate in his experience of the results of the latter operation.

Throughout this book it is that side of surgery concerned with cutting operations which receives nearly all the consideration. No apparatus is described, and little if any mention made of massage, manipulation, and gradual methods, although no doubt it is intended to be understood that these play their parts as adjuncts. A few pages on artificial hands and arms call for no comment. A short chapter on technique ends the book.

Anyone who is about to undertake one of these long and difficult cases will be well advised to consult this book, because it consists so largely of records of actual cases and because Dr. Beck is not afraid to record his unsatisfactory as well as his triumphant results.

SURGERY OF CHILDREN'S DISEASES.

A BOOK by Professor L. OMBRÉDANNE has appeared in the well known French collection entitled *Précis Clinique et Opératoire de Chirurgie Infantile*.[3] The volume before us is written in a simple and straightforward style; it is addressed both to students and graduates, and gives a clear account of French opinion on surgical branches of pediatrics. It is divided into two parts: the first and shorter is concerned with general pathology, and the second with diseases of different regions of the body. Operative treatment is discussed in detail, and a good deal of space is given to orthopaedic work. One feature of this useful book to which we wish to call attention is that, in discussing congenital malformations, the author departs from the customary anatomical scheme and relies on the much more suitable and instructive embryological classification.

The surgery of children's diseases is recognized to be a special branch of surgery, and this book is a very useful introduction to it.

[2] *The Crippled Hand and Arm.* By Carl Beck, M.D. London: J. B. Lippincott Company. 1925. (Med. 8vo, pp. xi + 243; 302 figures. 30s. net.)

[3] *Précis Clinique et Opératoire de Chirurgie Infantile.* Par L. Ombrédanne. Paris: Masson et Cie. 1923. (Cr. 8vo, pp. xvi + 1139; 584 figures. Paper cover, fr. 40; bound, fr. 45.)

A PRECIPITATION TEST FOR SYPHILIS.

A NEW modification of the precipitation test for syphilis is described by Dr. R. L. KAHN in his book *Serum Diagnosis of Syphilis by Precipitation*.[4] The procedure for carrying it out is a simplification of the ordinary Sachs-Georgi test which has been reached after a long period of study. In the earlier chapters of the book Dr. Kahn describes the experimental work which led him step by step to the perfection of what is now spoken of as the Kahn precipitation test.

The details of this experimental work are interesting from the theoretical point of view, but we must pass these by in order to give a short account of the distinctive features of Dr. Kahn's modification of the precipitin test. The ingredients of his test are serum, free from all visible particles, and antigen composed from an alcoholic extract of an ox's heart. The preparation of this antigen requires the extraction of definite amounts of powdered ox's heart in measured amounts of ether, after which the powder is extracted in alcohol and cholesterin added. The first step in the test is the titration of antigen to determine the minimum amount of salt solution which, when mixed with antigen, will produce a precipitate capable of readily dissolving on further addition of salt solution. In carrying out the routine test 1 c.cm. of antigen is added to a standard dilution tube and the amount of salt solution indicated by previous titration is added to a similar tube. This salt solution is poured into the antigen as rapidly as possible and thoroughly mixed, after which it is allowed to stand for ten minutes. Graded quantities of this diluted antigen are measured into three tubes, to each of which 0.15 c.cm. of clear inactivated serum is added. The serum and antigen must be well mixed and shaken vigorously for two minutes. Then 0.5 c.cm. of salt solution is added to each tube. The addition of the salt solution clears the negatives and disperses the precipitates in the positives, rendering the reading of results easier. After addition of salt solution to each the tubes are shaken for several seconds to permit thorough mixing and allowed to stand five minutes at room temperature before making the final reading of the results. Dr. Kahn says that fifteen minutes' incubation in the water-bath at 37° C. produces sufficient clumping of the precipitates to make the reading of the results easier, particularly in the case of weak reactions. Of course, antigen controls, serum controls, and positive and negative controls must be carried out at the same time.

These are the distinctive features of Dr. Kahn's technique. From the figures reported in this book it would seem that this modification agrees well with the orthodox Wassermann reaction, but judgement on such a proposition as this can only be given by further experimental work. The test sounds so simple that it certainly deserves a trial.

MELLOR'S "CHEMISTRY."

WE are now in possession of Volume V of Mellor's *Chemistry*.[5] It deals with boron, aluminium, gallium, indium, thallium, scandium, the rare earths, and carbon (part 1). Notices of the preceding volumes which have appeared in this JOURNAL have expressed approbation of the completeness of the author's treatment, the clearness of his expression, and the comprehensive and connected form of his presentation. Those qualities are well maintained in the volume before us. There is not a great deal in the way of new discovery to be recorded in the chemistry of the elements dealt with, but the more modern methods of physical chemistry are used to enlarge the explanation of their chemical behaviour. Both these and the subject of their application have acquired enhanced clearness in the author's hands; instances of their association chosen for reciprocal illustration are well selected. An example of this appears in a discussion of the acidic properties of boric acid where a diagram is given showing a comparison of the curve of the electrometric titration of boric acid, with, and without, mannitol, by the side of the

[4] *Serum Diagnosis of Syphilis by Precipitation.* By R. L. Kahn, M.S., D.Sc. Baltimore: Williams and Wilkins Company; London: Baillière, Tindall and Cox. 1925. (Demy 8vo, pp. xii + 237; 5 plates. 15s. net.)

[5] *A Comprehensive Treatise on Inorganic and Theoretical Chemistry.* Vol. V. By J. W. Mellor, D.Sc. London and New York: Longmans, Green and Co. 1924. (Roy. 8vo, pp. x + 1004; illustrated. 63s. net.)

corresponding curve for hydrochloric acid. On the same page is given a list of many indicators with the hydrogen ion concentrations shown by their respective changes of colour.

The article on boron contains a section of interest dealing with perborates, which are comparatively new articles of commerce. Sodium perborate is important as a compound containing a surplus of oxygen which it liberates in the same way as hydrogen peroxide under the action of the same chemical agents. The historical parts of the author's work are always entertaining. It appears that during a certain period of the Middle Ages the manufacture of alum was a jealously guarded monopoly of the Pope, to whom it was a rich source of revenue, alum being an important requisite of dyers. The claim in favour of celtium, a term proposed for the element discovered by Coster and Hevesy and named by them hafnium, is discussed. With a ready grasp of the evidence and with judicial fairness the author exposes the weakness of this claim.

The history of carbon monoxide as here related furnishes the speculative student with an excellent lesson in analytical logic and the constructive use of evidence. Priestley held it to be phlogisticated water, adducing in favour of his argument the fact that inflammable air is produced when steam is passed over red-hot charcoal. The opponents of the phlogiston theory were perplexed by the fact that they were confronted with a compound of carbon and oxygen which had not the incombustible property of the already known oxide of carbon, which later became distinguished as the dioxide. Even after Cruickshank had shown that it contained nothing but carbon and oxygen, Berthollet held to the objection that if it were true that it contained more carbon than there was in carbon dioxide it ought to be specifically heavier. Carbon monoxide has certain properties which may be called hypnotic. On this fact is founded an interesting discussion on the mode of action of chloral hydrate. It is known that chloral hydrate may disengage carbon monoxide under oxidizing agencies such as those existing in the circulation, and it is suggested that the effect of such disengagement affords a more acceptable explanation of its hypnotic action than the view that it is decomposed with generation of chloroform. This is an instance of the many items of curious interest which are scattered through the pages of the book in their proper context with regard to chemical phenomena, but are yet remote from where they would be expressly sought. For this reason we suggest that the finished work should be supplemented with a general index containing sufficient references to enable all such matters to be easily found.

NAUTICAL COMPARATIVE ANATOMY.

SIR ALAN MOORE'S delightful book *Last Days of Mast and Sail*[6] bears only two reminders that its author is a medical man. But for the confession in the preface a reader unfamiliar with the author's name would certainly guess him to be a professional sailor, and fail to notice the clue to his calling betrayed by the alternative title "An Essay in Nautical Comparative Anatomy." This is an intriguing book. It roams from square sails to lateen sails, sprit sails, gaff sails, and every type of rig. Sir Alan Moore says that as long as he can remember he has been fascinated by ships and boats, which throw on him a spell "like that which is cast on many by birds." Four years in the R.N.V.R. as midshipman and sublieutenant gave him a greater insight into naval ways, and during the war he served as a temporary surgeon in the navy. All his life, it seems, he has taken every opportunity to learn the ways of seafaring people, to study their craft, and to familiarize himself with every detail in the handling of a ship.

His motive for writing this unusual book had best be given in his own words: "The use of sails is so rapidly passing away that it behoves us, the last of the ancients, the last generation perhaps, to know and to use the sail, the oar, the beast-drawn cart, and wind-driven mill, to record what we saw of a dying age, lest in the blaze of the new era which blinds the majority to the interest, nay the existence of so many beautiful and ingenious contrivances of immemorial use, they be utterly forgotten, and lest when, sated with inventions or because they have ceased to invent, men turn again to a time recent but remote, they find no record of vanished but familiar things that furnished much of the setting of their grandfathers' lives."

No one would dispute the likelihood of Sir Alan Moore's prophecy, for certainly the sailing ship is passing away, to be replaced by steam- and petrol-driven boats. But the beautiful ships and ingenious contrivances of seafaring life in bygone days will not vanish without record, for in this charmingly written and elegantly illustrated book an accurate record has been preserved. Its pages will be fingered affectionately by sailors who understand every familiar nautical phrase, and it will be a textbook of romance to all children who feel the irresistible call of the sea.

[6] *Last Days of Mast and Sail.* By Sir Alan Moore, Bt. Oxford: The Clarendon Press. 1925. (Roy. 8vo, pp. 260; 222 figures. 21s. net.)

NOTES ON BOOKS.

PROFESSOR ALEXANDER FINDLAY'S *Physical Chemistry for Students of Medicine*[7] is a pioneer piece of work. As the study of medicine rests on physiology, so is physiology raised on foundations furnished by physics, chemistry, and other academic divisions of learning. Chemistry in its modern development has become more and more identified with the physics of the molecule. For physiology this fact is of momentous consequence, since the functions of organic life are regulated by dynamic properties. Professor Findlay's treatment of the subject is suitable for any student of physical chemistry, but it is particularly adapted for students of medicine in that the facts dealt with are referred to their physiological bearings. How directly significant these facts are may be illustrated by the following passage: "In febrile conditions reduced viscosity is usually found owing to the rise of temperature, and since the temperature coefficient of viscosity of blood is high (in some cases as high as 3 per cent. per degree centigrade), the reduction in viscosity may be considerable, and the strain placed on the heart will be correspondingly reduced." The book is characterized by aptly chosen references to matters of medical interest touching on bacteriology, enzymes, antitoxins, and other subjects. It should have a foremost place in every student's scheme of work; its contents are the bed-rock of what he is to learn in the future.

The work on *Infection, Immunity, and Inflammation*,[8] by Dr. FRASER B. GURD, lecturer in applied immunology and in surgery at McGill University, Montreal, is, as its subtitle states, "a study of the phenomena of hypersensitiveness and tolerance, and their relations to the clinical study, prophylaxis, and treatment of diseases." After an introductory chapter dealing with the defensive and offensive reaction of the body against irritation, the author discusses the nature of infection and infective agents, immunity and immunization, and anaphylaxis in animals and man. Special chapters are devoted to the physiology of anaphylactic shock and the application of immunity principles to the prevention and treatment of diseases, such as diphtheria, tetanus, pneumonia, dysentery, and hay fever. The laboratory worker and the clinician will find the volume a useful handbook.

The *Catalogue of Pathological Preparations in the Museum of the Royal Samaritan Hospital, Glasgow*,[9] has been arranged for publication by D. MCINTYRE and JOANNA T. RAE on the basis of a catalogue compiled by Dr. Mary Hannay. The 286 specimens in the museum are arranged in twenty-three series, classified on a basis that is partly anatomical, partly pathological. The various diseases of the female generative organs appear to be well represented: brief descriptions of the specimens are given and notes of the cases when available. Much care has evidently been bestowed on the microscopical preparations; a list of slides of special interest or of instructional value, available for the use of students, is given. A useful addition, which we do not remember to have seen in other museum catalogues, are the cross-references appended to each section. The authors are to be congratulated on the way in which they have accomplished their task.

[7] *Physical Chemistry for Students of Medicine.* By Alexander Findlay, M.A., D.Sc., F.I.C. London and New York: Longmans, Green and Co. 1924. (Demy 8vo, pp. ix + 227; 39 figures. 8s. 6d. net.)

[8] *Infection, Immunity, and Inflammation.* By Fraser B. Gurd, B.A., M.D., C.M., F.A.C.S. London: Henry Kimpton. 1924. (Med. 8vo, pp. 329. 25s. net.)

[9] *Catalogue of Pathological Preparations in the Museum of the Royal Samaritan Hospital, Glasgow.* Arranged by Donald McIntyre, M.B., F.R.C.S.E., F.R.F.P.S.G., and Joanna T. Rae, M.B., Ch.B. Glasgow: MacLehose, Jackson and Co. 1924. (Demy 8vo, pp. 90. Printed for private circulation.)

British Medical Journal.

SATURDAY, MAY 30TH, 1925.

ARTIFICIAL PRODUCTION OF THE ANTI-RACHITIC VITAMIN.

THE discovery that irradiation with ultra-violet light causes the antirachitic factor to appear in substances which previously were inert represents a very important advance in medical science. In the first place, this discovery solves the mystery of rickets being cured by two such divergent specifics as sunlight and cod-liver oil; secondly, it promises to throw much light on the origin and nature of vitamins; and thirdly, it renders possible the artificial production of at least one vitamin.

As long ago as 1919 Huldschinsky proved that ultra-violet light could cure rickets, but for some years attention was diverted from this fact by another discovery—namely, that substances rich in fat-soluble vitamins acted as specifics in rickets. At first the antirachitic vitamin was believed to be identical with the growth-promoting vitamin A, but it is now believed that these two factors are distinct, although they are both fat-soluble and are usually associated. The prolonged controversy concerning the relative influence of bad housing conditions and faulty diet in the production of rickets was finally set at rest in a general agreement that rickets could be cured either by exposure to ultra-violet light or by administration of the antirachitic factor. The connexion between these two specifics was, however, at first a complete mystery; but the problem has now been solved by work which has been conducted almost simultaneously in several laboratories both in this country and in the United States of America.

Steenbock[1] and Hess[2] both showed in 1924 that rats fed on a rachitic diet were benefited if their diet was exposed to ultra-violet light, and this explained previous work, which had suggested that rachitic rats gained, not only by direct exposure to ultra-violet light, but also if their environment alone was irradiated. Steenbock has since shown that a large number of foodstuffs, but not all, can be activated by exposure to ultra-violet light. Drummond and other workers[3] in this country had meanwhile brought forward evidence indicating that the active antirachitic substance in cod-liver oil was closely associated with cholesterol. Steenbock, Drummond, and Hess have all since shown that solutions of chemically pure cholesterol, which have no antirachitic action, acquire this property after exposure to ultra-violet light. The antirachitic factor can therefore be produced from a pure chemical substance by the action of ultra-violet light. This effect is remarkable and unexpected, for Zilva in 1920 had shown that prolonged exposure to ultra-violet light actually destroyed the vitamins in cod-liver oil. The nature of the change produced by the ultra-violet light is unknown, but it would appear that it is of a chemical nature, that only a minute fraction of the cholesterol acted upon is activated, and that this fraction is destroyed by prolonged exposure. It is certain that other substances besides cholesterol can be activated, and these substances are probably sterols related to cholesterol.

This discovery should have immediate and important practical results, since it makes it possible to confer antirachitic properties on a large number of foodstuffs. In particular it appears to be possible to render vegetable oils antirachitic. Further, it is to be noted that experiments[4] have already shown that rickets can be treated successfully with irradiated milk. The antirachitic factor is relatively stable, and it seems probable that means will be discovered for producing the factor in a concentrated form. The discovery should therefore render the prevention of rickets a comparatively cheap and simple matter.

Steenbock suggests that the antirachitic factor may also prove beneficial in other diseases where the calcium metabolism is deranged, and in diseases such as infantile tuberculosis, where sunlight and ultra-violet light have already been proved to have beneficial effects. The discovery that the antirachitic factor can be produced from the sterols gives us reasonable grounds for hoping that before long its chemical nature will be elucidated, and that means of isolation and concentration will be found. The other fat-soluble vitamins which promote growth and reproduction appear not to be produced by irradiation; but the discovery of a means for the production of one vitamin naturally encourages the hope that before long similar discoveries will be made in the case of the other vitamins.

[1] Harry Steenbock and Amy L. Daniels: Irradiated Foods and Irradiated Organic Compounds; *Journ. Amer. Med. Assoc.*, 1925, 84, 1093.

[2] Alfred F. Hess and Mildred Weinstock: Antirachitic Properties Imparted to Inert Fluids and to Green Vegetables by Ultra-Violet Irradiation, *Journ. Biol. Chem.*, 1924, 62, 301.

[3] J. C. Drummond, O. Rosenheim, and K. H. Coward: The Relation of Sterols to Vitamin A, *Journ. Soc. Chem. Industry*, 1925, 44, 1.

SUBURBANIZATION.

URBANIZATION is an ugly word. Suburbanization is an uglier, and the manner in which the process is developing around London suggests that the thing itself may be as objectionable as the term. Even within the last three or four years a dweller in an extending suburb finds that tree-shaded roads which afforded pleasant walks are being disfigured by great stretches of wooden hoardings plastered over with staring advertisements, and that the hoardings are in their turn displaced by long rows of shops and dwelling-houses which effectually conceal the country itself from the wayfarer. Greater London must be allowed to grow: that is for the present inevitable, whether we desire it or not. Queen Elizabeth thought the town was quite large enough in her time, but she little knew what was to follow. The growth, however, ought to be controlled, not only to ensure that the new houses may be judiciously and hygienically distributed, but also in such manner as to save whatever may be saved of the beauty of the country when invaded by the town. During the first two-thirds of the nineteenth century the extension of London was rapid to the south, but very slow in the north. Forty years or so ago there were few houses beyond Hampstead Heath; Hendon, for instance, was a village with a pond, which still remains. Edgware also was a village, and even Cricklewood was only a handful of houses. Now all that is changed, and penetration northward proceeds apace. The Town Planning Act provides the means of regulation and control. Hitherto, so far as we have observed, the power to form advisory committees for regional schemes of planning has been used mainly or wholly in industrial areas. The outstanding case is that of Manchester and the places of which it is the centre. Over seventy authorities have combined in this part of Lancashire to constitute a committee to consider the lines which should be followed in the

[4] S. J. Cowell: Irradiation of Milk and the Healing of Rickets, BRITISH MEDICAL JOURNAL, 1925, i, 594.

further development of that already thickly populated region. Other places where similar action is being taken include North and South Tyneside, Tees-side, Rotherham, Doncaster, Deeside and the Wirral Peninsula. Nearer London, and less notably industrial, are North-east Surrey, West Middlesex, and the Thames Valley. The powers of such committees are advisory only, not executive, but on that very account local authorities need have less hesitation in appointing them; their work is, in fact, of the greatest value.

It is well, then, that the county authorities of Hertfordshire should be taking counsel together as to how to direct the distribution of new dwelling-houses in their pleasant land. At a meeting in London the other day they were addressed by Mr. Neville Chamberlain, the Minister of Health, who urged the adoption of a regional scheme of town planning. He pointed out that the proposals would not involve expenditure, but would, on the contrary, save the outlay in which many big cities had become involved in order to undo the mistakes of the past. There is risk of a new kind of mistake being committed on a huge scale, for, as he truly said, the development of motor traffic has rapidly altered the whole problem, and unless proper lines are preserved the authorities may have later on to buy out at enormous cost buildings at present being erected on new roads. In preparing a scheme, Mr. Chamberlain held, not merely the economic but the aesthetic had to be kept in view. Any scheme for Hertfordshire should cover the whole county, and should include extension of the garden cities already in existence. It might also be necessary to go outside the county boundaries, and the Town Planning Act places no limit on co-operation. The meeting, which was presided over by the chairman of the county council, adopted a motion, proposed by the Mayor of Hertford and seconded by the Mayor of St. Albans, for the appointment of a joint town planning committee. This particular proposal, therefore, has been launched under most favourable auspices, and it is to be desired that other of the home counties—Buckinghamshire, for instance—should follow the example of Hertfordshire. An arresting letter on the subject from Mr. Patrick Abercrombie, professor of civic design in the University of Liverpool, has been published (in the *Times*) since the meeting. His point is that the most important and difficult task of the joint committee will not be the provision and control or even the amenity of arterial roads, nor the spacing of industries, nor the preservation of open spaces; the vital problem is the regulation of normal residential development, as between two methods of growth—" the ribbon unrolled along the roadside, and the radiation emanating from a central nucleus." The former not only inflicts the maximum destruction of rural beauty and social life, but is the most extravagant in respect of sewers, water, light, and police. The garden cities illustrate the advantages of the other method, which is, indeed, unconsciously followed in the ordinary growth of existing towns. The principles enunciated by Professor Abercrombie should receive most careful consideration by all who are engaged in such work as that of the Hertfordshire joint committee.

But there are wider aspects. Would not a scheme of populations based on long arterial roads bordered mile after mile by villas and bungalows abolish community life? Even though some inexperienced individuals may think that they can be self-sufficing, and will never want to go to church or cinemas or lectures or concerts, or may not have children needing to be sent to a local day school, other people have these desires and obligations, which need to be brought within their reach. Every village has its shopping centre, suitable for its own inhabitants, but on this crazy plan of house-edging " arterial " roads such centres would be few and far between. The simile should have prevented anyone possessed of an ordinary amount of common sense from falling into an error so egregious.

England is more alive to-day than ever before to the blunders committed in the uncontrolled growth of towns since the industrial revolution which owed its origin to Watt's invention of the steam engine and resulted in the substitution of mass production in factories in towns for the domestic and village industries of the eighteenth century. But this generation should be particularly careful that in remedying, so far as may be, the evil results of urban overcrowding of building space in the past, it does not perpetrate a new offence by so distributing the dwellings which will be erected throughout the country that they not only blot out from the view of travellers along the main roads the pleasant picturesque scenery which has always been so notable a feature of rural England, but substitute for villages, small or large, long straggling " ribbons " of population which would be alike impracticable for local government and destructive of communal life.

MISSING LINKS.

In the course of a lecture delivered at University College on May 22nd in aid of St. Christopher's Working Boys' Club (Guild of University College, London) Professor Elliot Smith sketched the history of the various claims made in the past for the discovery of links that were missing in the chain of man's connexion with the apes, and discussed the significance of the Taungs skull recently recovered by Professor Dart in Bechuanaland. Professor Elliot Smith observed that, as Professor Bolk has emphasized, profound changes occur in the structure of the anthropoid apes in their development from birth to maturity; and the newborn gorilla and chimpanzee exhibit many traits, not found in the adult, that closely resemble those of the human baby. Professor Dart was handicapped in not having access to collections of anthropoid skulls such as are available in London. Hence he fell into the not unnatural error of claiming certain of these infantile characters in his fossilized baby ape that are shared equally by four-year-old gorillas and chimpanzees as evidence of a nearer kinship to man. The peculiarities of posture and poise of the head, and several of the features of the jaw and face, upon which he relied in substantiation of these claims, are expressions, not of human affinities, but of characteristically simian infancy. The size of the brain and the sum of the characters of the skull and face reveal the fact that Australopithecus is most nearly akin to the known African anthropoids, the gorilla and chimpanzee. But it differs profoundly from both of these apes in several respects, and certainly belongs to a hitherto unknown genus. In the absence of salient eyebrow ridges it resembles the orang, from which, however, it differs in most other respects. The shape of the cranium is so much longer and narrower (that is, more man-like) than those of the other apes that the question arises whether there has not been a *post-mortem* distortion to explain the length and the peculiar lateral flattening. But the evidence at present available—especially the lack of any exceptional asymmetry in the face and the fact that the jaws are definitely less prominent than those of young gorillas and chimpanzees—suggests that no such distortion has occurred, or, at any rate, nothing in any way adequate to explain the profound contrast between the Taungs ape and all the

other known anthropoids. These cranial characters, as well as the form and proportions of the nasal bones, the jaws, and teeth, afford definite evidence of a closer affinity to man than any living ape reveals. None of them individually is sufficiently great to raise the Taungs ape above the level of the gorilla; but collectively they do constitute impressive evidence in substantiation of the close kinship of Australopithecus to man's ancestors, and even the possibility that an ape of this genus may have been in the direct line of human descent. If, as has been claimed, the geological conditions in Bechuanaland were essentially the same when the Taungs skull was deposited in the limestone cave where it was found as they are now, the problem arises, How did this anthropoid ape wander thousands of miles from the present habitat of its relatives? Had it already, like primitive men, emancipated itself from the necessity of forest life? Or, alternatively, had it become specialized, like the baboons, to live under such conditions as prevail on the edge of the Kalahari desert? The answers to these questions have a direct bearing upon the claims that Australopithecus had already attained, not only the first stage in the process of refinement of its features, but also in its adaptability to more complex conditions of life, such as primitive man displayed when he freed himself from an arboreal or semi-arboreal existence. In attempting to arrive at a just appreciation of Professor Dart's achievement it has been necessary to call attention to the fact that some of the criteria upon which he based his inferences are evidence of infancy rather than of close human kinship. But this (Professor Elliot Smith concluded) should not blind us to the considerations (*a*) that he has rescued the only face and endocranial cast of a fossil anthropoid so far recovered, and (*b*) that it represents a hitherto unknown genus with interesting suggestions of affinity to man's Miocene ancestors.

YEASTS.

DR. CHASTON CHAPMAN'S presidential address to the Royal Microscopical Society contained some interesting references to the classification, structure, and physiological behaviour of yeast cells. It is customary to include within the group of yeasts all the unicellular fungi which reproduce by budding, but more strictly the term would be limited to such budding cells as are capable of forming ascospores, and the remainder, which do not form spores, relegated to the group of torulae. Present systems of classification of the yeasts are based on that suggested by Hansen in 1904, but Dr. Chapman follows certain recent French systematists and distinguishes five main groups. The first group, the schizosaccharomycetes, reproduces by transverse division. Hansen excluded them from his original system, but it is convenient to include them though their method of reproduction has a close affinity to that of bacteria. The second group, the zygosaccharomycetes, consists of yeasts in which some sexual conjugation precedes or accompanies the formation or germination of the ascus. This interesting group tempts speculation as to whether the great experiment of sex conferred benefit or otherwise on the yeasts. The third group, the true saccharomycetes, includes all those yeasts which reproduce mainly by budding and in which the formation of the ascus is not, so far as is known, preceded by any form of conjugation. Here belong the familiar yeasts of the bakery and brewery. The fourth group of non-alcohol producers includes the genera Pichia and Willia, yeasts which do not betray any trace of sexuality, and which usually develop in the form of a film or skin upon the surface of the liquids in which they are growing. The fifth group, including two or three genera, consists of yeast-like cells whose connexion with the saccharomycetes is somewhat doubtful. Dr. Chapman does not concur with the views of Wager and Peniston, who look upon the main vacuole as the nucleus, and speak of the deeply staining structure (generally regarded as the nucleus) as the nucleolus. About the other structures visible within the yeast cell he has nothing fresh to say, but he gives a brief account of the different forms which fermentation takes according to the conditions under which the yeast cell is compelled to carry out its activities. Thus, whilst the ordinary *Saccharomyces cerevisiae* normally decomposes sugar with the production of alcohol and carbon dioxide and only about 3 per cent. of glycerin, when the fermentation is conducted in the presence of a considerable quantity of sodium sulphite the main products are acetaldehyde and glycerin in roughly equal molecular proportions, and instead of the normal 3 per cent. as much as 36 per cent. of glycerin can be produced. This was made use of by the Germans during the war in order to obtain glycerin for making munitions. The reading of this stimulating paper by Dr. Chaston Chapman calls to mind the closing sentence of that masterly treatise by Dr. Arthur Harden on *Alcoholic Fermentation*: "In every direction," he said, "fresh problems present themselves, and it cannot be doubted that as in the past the investigation of the action of the yeast cell will still prove to be of fundamental importance for our knowledge of the mode in which chemical change is brought about by living organisms."

PATHOLOGICAL RESEARCH AND ROUTINE EXAMINATIONS.

THE department of pathology and bacteriology in Leeds University has made gratifying progress during 1924. In February of that year the Senate and Council of the University approved a new scheme for undertaking the pathological work of the Leeds Union Infirmary, and Professor M. J. Stewart was appointed consulting pathologist. Since 1918, when the original agreement was made with the Infirmary Board, there has been a steady increase in the amount of this work, resulting in some interference with research. In the annual report of the department for 1924 attention is drawn to the Medical Research Council's recent criticism of routine work in university laboratories, to which reference was made in the JOURNAL of February 14th, 1925 (p. 319). Professor Stewart does not agree with the suggested separation of routine work from research recommended by the Medical Research Council; he considers that the routine work only requires more adequate staffing and accommodation for it to provide good training for junior members of the university and prevent research work from becoming divorced from clinical practice. Professor J. W. McLeod, Brotherton professor of bacteriology and city bacteriologist, also commenting on the Medical Research Council's strictures, insists on the importance of providing an adequate stream of material through the department for research and teaching purposes. He agrees that the treatment of members of pathological and bacteriological departments of universities generally has not been altogether fair, and considers that the remuneration of the younger members of the staff should be higher. He believes that with a sufficiently large and well paid staff the system of combining routine work with research does not call for immediate change, and that so long as the financial position of the country is difficult this handicap of the university is not unreasonable. Research work undertaken during the year includes the study by Professor Stewart of the morbid anatomy of gastric and duodenal ulcer, with special reference to the question of the relation, if any, between simple chronic ulcer and cancer. A new method of estimating urea in blood, devised by the late Dr. Wyon, lecturer in pathology in Leeds University, has now been perfected and is in regular use. Dr. Fowweather and Mr. G. A. Collinson are working on a new clinical method for the estimation of iodine in blood, in connexion

with the physiological distribution of thyroid secretion. The value of the Wassermann test as performed in Leeds has been compared with methods in use elsewhere, and the conclusion reached is that only slight modifications of technique are required to bring the Leeds Wassermann results to the highest possible degree of sensitiveness and accuracy. Dr. H. Ross and Dr. Gordon, who have been investigating respectively the bactericidal action of oils and fats on bacteria and the inhibition of bacterial growth of amino-acids, have received grants from the Medical Research Council and the British Medical Association; and grants have been made also to Professor Stewart and Mr. P. J. Moir. During the year a collection of x-ray apparatus has been installed, and valuable results have been obtained by radiological examination of pathological specimens. Many of the photographs have been used for teaching purposes.

SLEEPING SICKNESS CONFERENCE.

THE International Conference on Sleeping Sickness, the opening of which by the Under Secretary of State for the Colonies was recorded last week (p. 976), has made a series of recommendations. The most important of these is that an international commission should be set up to continue and promote in equatorial Africa the investigation of certain problems which at present await solution. Among these are the existence of any human immunity against trypanosomiasis and the comparative value both from the curative and prophylactic point of view of trypanocidal agents; the part played by wild and domestic animals as breeding places for the virus; the relations between trypanosomiasis due to *T. gambiense* and *T. rhodesiense* respectively; and the effect of precipitins applied to the blood in the alimentary canal of the tsetse fly. These subjects are already being investigated in various national institutes, and it is suggested that great advantages would flow from co-operation between them and the co-ordination of work now in progress. Uganda and the regions in the neighbourhood of Lake Victoria are thought to be the territory most suited for the study of the problems enumerated. The Conference has recommended that the local international commission should be presided over by Dr. H. L. Duke, bacteriologist to the Uganda Government, under whose guidance valuable researches have been carried out in the laboratories at Entebbe. Extensive field work has already been done by the medical services of Uganda and by the administrative officers of the adjoining territory of Tanganyika. The Conference has recommended that, in addition to a few workers from the institutes of African Powers, the commission should include a biochemist and entomologist with local knowledge, and that the collaboration of Dr. Kleine should be invited. It has suggested also that the commission should meet at Entebbe at the end of this year or in January, 1926, and twelve months later present a special report to the League of Nations expert committee. After studying the research methods at the Entebbe institute and its field laboratories, as well as the field work and measures taken against sickness in Uganda and Tanganyika, the commission would examine the methods for the control of the tsetse fly Mr. Swynnerton has instituted in the Tanganyika Territory. Other recommendations of the Conference laid stress on the need for periodic official conferences between the administrative and medical officers engaged in the campaign against sleeping sickness on both sides of the boundaries between infected countries. It advises also the institution of a system of sanitary passports for the native population in the infected areas, and wherever practicable the plan of establishing areas freed from population on both sides of the frontier in order to facilitate the control of native traffic. Special agreements, it considers, should be made between local administrations to allow of rapid and regular interchange of all epidemiological intelligence and information, that the recommendations of the chief of the medical service in sleeping sickness areas should be binding on the local administrations, and that in such areas the medical officers should have magisterial powers regarding the application of measures in connexion with the campaign. The need is emphasized of providing a medical and health service, including medical officers and auxiliary staff proportionate to the number of the population infected and the extent of the district to be inspected, and of adequate administrative staffs, particularly in the neighbourhood of frontiers. Attention was drawn also to the necessity of uniform methods for recording statistics relating to the morbidity and mortality of sleeping sickness, and of preparing maps showing the prevalence of the disease, the sites of the sleeping sickness camps, the sectors of prophylaxis, and the distribution of the various species of glossinae. These subjects are to be studied and recommendations, including one for a uniform system of laboratory diagnosis, made to the Health Committee of the League of Nations for submission to the Governments concerned. It is estimated that £10,000 will be required, but this would include the salaries of local scientific personnel, the foreign members and laboratory assistants, as well as travelling and other general expenses. The delegates of the various Governments present at the Conference were asked to move their Governments to contribute to a common pool, but it is anticipated that the Governments will continue to pay the salaries of the medical officers and other workers who take part in the work of the commission. The Conference also strongly recommended that the Governments should obtain for 1926 a credit balance of at least £3,000 from the Health Organization of the League of Nations, and it is hoped that funds may also be provided by the scientific research organizations of certain countries.

BRITISH ASSOCIATION, SOUTHAMPTON, 1925.

THE preliminary programme for the annual meeting of the British Association, to be held at Southampton from August 26th to September 2nd inclusive, has been issued. The inaugural general meeting will take place in the Central Hall on Wednesday evening, August 26th, when Professor Horace Lamb, F.R.S., will assume the presidency of the association in succession to Sir David Bruce, and give the presidential address. The sections and their presidents this year are as follows: A, Mathematics and Physics, Dr. G. C. Simpson; B, Chemistry, Professor C. H. Desch; C, Geology, Professor W. Parks; D, Zoology, Mr. C. Tate Regan; E, Geography, Mr. A. R. Hinks; F, Economic Science and Statistics, Miss Lynda Grier; G, Engineering, Sir Archibald Denny; H, Anthropology, Dr. T. Ashby; I, Physiology, Professor A. V. Hill; J, Psychology, Professor C. Spearman; K, Botany, Professor J. Lloyd Williams; L, Educational Science, Dr. W. W. Vaughan; M, Agriculture, Dr. J. B. Orr. Among the items in the provisional programme of addresses, discussions, etc., we may note the following: August 27th, discussion in the Educational Science Section on "Health in schools, epidemics and dietary"; conference of delegates of corresponding societies presided over by Sir Daniel Hall. August 28th, presidential address by Dr. Vaughan, headmaster of Rugby, on the warp and woof in education; lecture by Mr. J. E. Barnard on the observation of the infinitesimally small. August 31st, presidential addresses by Professor Desch on the chemistry of solids, Professor Hill on the physiological basis of athletic records, and Dr. J. B. Orr on the inorganic elements in animal nutrition; joint discussion by Educational and Zoological Sections on the teaching of biology in schools. September 1st, joint discussion by the Sections of Physiology and Psychology on

the acquisition of muscular skill. During the meeting a series of public lectures to citizens and their children will be given by members of the association. The annual meeting of 1926 will be held in Oxford under the presidency of H.R.H. the Prince of Wales.

THE "BRITISH MEDICAL JOURNAL": NEW ADDRESS.

OUR present issue is the last to be printed at 429, Strand. During the Whitsun holidays the Editorial and Printing Departments of the BRITISH MEDICAL JOURNAL will be removed to the new headquarters building of the British Medical Association in Bloomsbury. Henceforward the postal address for all communications intended for the Editor will be "BRITISH MEDICAL JOURNAL, *British Medical Association House, Tavistock Square, W.C.1*," the telephone number of the Editorial Department will be *Museum 9864*, and the telegraphic address "Aitiology, *Westcent*, London." Until further notice is given in these columns, all communications with reference to advertisements, as well as orders for copies of the JOURNAL, should continue to be addressed to the Financial Secretary and Business Manager, 429, Strand, W.C.2. It is expected that the Medical Department and the Library of the Association will be removed about June 17th, and the Finance Department about June 19th.

LONDON AND COUNTIES MEDICAL PROTECTION SOCIETY.

THE annual general meeting of the London and Counties Medical Protection Society, Ltd., was held on May 20th, under the chairmanship of Sir JOHN ROSE BRADFORD.

The report of the council stated that the number of applications from members asking for advice and assistance in 1924 was 785; in the large majority of cases satisfactory results were obtained without litigation. The case of outstanding importance in which the society had been concerned was that of Harnett *v.* Bond and Adam, in which the society bore the whole of the expenses of the defence of its member, Dr. Adam. Hitherto provision by the society of an amount not exceeding £3,000 for defraying any damages awarded against a member, together with costs allowed to the other side, had been more than adequate; but it became evident that any such limit might be exceeded in exceptional cases such as this one, and the council therefore at once made provision by insurance for an unlimited amount, so that members could be completely indemnified in all circumstances. During the year the society was required to spend £8,244 on legal proceedings; of this amount, £6,331 represented the cost of actual defence of members, and £1,913 went in payment either of adverse costs and damages awarded in cases which were unsuccessful or in settlement of claims when this was thought advisable. Of the £6,331 spent in defence of members only £31 was actually recovered from the other side in cases in which the society, having been successful, was awarded costs, but in addition to this small sum an amount of £2,434, representing the costs recovered in the Harnett case on the favourable decision by the Court of Appeal, was held in suspense pending the result of the appeal to the House of Lords, and now about £1,867 of that amount would be brought into the society's account for the present year. A report by the society's solicitors (Messrs. Le Brasseur and Oakley) was appended to the report of the council, and contained particulars of many interesting cases, including what has become known as the "£1,000 fine" case under the National Insurance Act.

Sir JOHN ROSE BRADFORD, in moving the adoption of the report, said that much of the work of the society was undertaken, over and above the defence of individuals, for the benefit of the profession as a whole. He had heard it objected against the society that it possessed a large amount of accumulated funds, and therefore could not have been so liberal in its expenditure on defence as it might have been. But if it had not been for the fact that the society had these large accumulations an action such as the Harnett case could not have been successfully undertaken and carried through from the lowest court to the highest. He thought the society was to be congratulated on being able to meet this very large call out of its own hard cash; the expenses were not met in any indirect way by insurance, but were actually paid out of the society's assets. The society had had a larger accession of members than in previous years; the number who joined last year was 1,142, and of these 436 were men in the first year of their qualification. The number of medical practitioners in London, the provinces, and Wales was 28,400, and of these the society included in its membership slightly under one-third, and, of course, had many members of the dental profession in addition.

There was a scheme on foot, Sir John Rose Bradford continued, for starting another defence society. It would be premature for him to discuss that matter, but he did wish to say that it could not be seriously urged that there was any reason for the institution of a third society, connected directly or indirectly with the British Medical Association, on the ground that the existing societies did not perform their work efficiently. Every society had some members who were dissatisfied, but in the "London and Counties" there was extremely little evidence of such dissatisfaction. It was the exceptional thing to have any complaint, or even any criticism, of the way in which the affairs were conducted; and the same thing, he knew, applied to the other great defence society.

The report was unanimously adopted, and with many expressions of appreciation Sir John Rose Bradford was re-elected to the presidency, and Dr. C. M. Fegen to the treasurership. Dr. FEGEN said that it was worth while to recall the fact that the members of the society had never been compelled to appeal to the profession as a whole for contributions to pay for costs or damages in cases which had been won against them. They had never had to go to the larger circle of the medical profession or to the general public, cap in hand, for help in an unfortunate dilemma.

The vice-presidents, retiring members of council, and other officers were all re-elected.

ROYAL COMMISSION ON LUNACY AND MENTAL DISORDER.

Evidence of National Council for Mental Hygiene.

AT the sitting of the Royal Commission on Lunacy and Mental Disorder on May 22nd evidence was tendered by Dr. E. Farquhar Buzzard, Dr. H. Crichton Miller, and Dr. R. Worth, on behalf of the National Council for Mental Hygiene.

Dr. FARQUHAR BUZZARD explained that the council was of recent institution, and its purpose was the co-ordination of the various associations interested in mental hygiene, and the furtherance of the education of the public in this respect. The council, in a memorandum prepared for the Commission, urged that the treatment of mental disorder should be brought within the fold of general medicine. The segregation of mental cases in institutions divorced from general hospitals created an impression that mental illness was something quite different from bodily, and, on the other hand, owing to the conduct of some patients general hospitals were not suitable for the treatment of certain forms of mental disorder. Facilities for early treatment should in these cases be provided at local clinics separate from either mental or general hospitals. The council had attempted to arrive at some idea of the number of persons in the early stages of mental disease. From the report of the Prison Commissioners it appeared that in a recent year 1,842 prisoners were remanded for report on their mental condition, and, in addition to these, 134 were certified insane during sentence, 227 were found insane on remand, and 55 were found insane at the time of trial. These 416 persons who were definitely found insane had broken the law while in the incipient or early period of insanity, and they were people for whose treatment at present there was entirely inadequate provision. Suicides, again, in a recent year, numbered close upon 4,000, and mental instability entered to an unknown extent into the problems of illegitimacy, dependency, vagrancy, and alcoholism. Still another class of early mental sufferers had now to be reckoned with—the increasing number of those who had encephalitis lethargica. The council had recently sent out a questionary to 237 of the more important hospitals and

infirmaries in Great Britain asking what facilities were available for the treatment of mental disorder, and of the 159 institutions which replied 135 stated that they had no provision of any description, and of the 24 who had some form of provision only 5 afforded in-patient treatment. The recommendation of the council was that skilled treatment for mental disorders in their early stages should be available in clinics belonging to the general hospitals, or, when the general hospital was unable or unwilling to undertake the work, in special institutions. The work, if in association with a hospital, should be carried on in a completely separate building, but the organization should approximate as closely as possible to the voluntary hospital principle, and there should be no compulsory detention. Voluntary boarders should be allowed in all county and borough mental hospitals, and the council was in agreement with the British Medical Association as to the desirability of extending the voluntary boarder system to rate-aided institutions. With regard to the provision of early treatment for those who could pay, it was of opinion that medical practitioners should be allowed to treat willing and non-volitional patients without certificates in registered nursing homes or kindred institutions, but wherever non-volitional cases were received some form of notification to or supervision by the central authority was desirable. To protect patients and to maintain the principle of bringing this treatment into line with general medicine, the registration of all nursing homes was urged. The council deprecated any special registration of homes on the ground simply that the condition of the patients was thought to have a mental rather than a physical basis. If nursing homes of every type were registered abuses could be dealt with by the ordinary processes of law, and patients suffering from mental disorder could have the freest choice as to where they wished to be treated.

The suggestion that all nursing homes should be registered was questioned by members of the Commission. Lord Russell thought that any necessary supervision of nursing homes could be better undertaken by a medical body than by the State.

The CHAIRMAN (Mr. H. P. Macmillan, K.C.) asked for the views of the council on the medical superintendent and his duties. Dr. WORTH urged that a mental hospital must be under one head, and that head a medical man. He had known a case in which a medical superintendent had his responsibility shared by a director of administration, but there was inevitable collision. The one medical head was necessary because the whole régime of the institution was part of the treatment. Dr. Worth also favoured a system whereby the patient's medical practitioner could follow the patient after he had entered the institution; this would furnish another of the desirable points of contact between the institutional patient and the outside world.

Dr. CRICHTON MILLER urged that the Board of Control should be empowered to act in a consultative capacity in doubtful cases. At present the members of the Board were personally helpful in such cases, but this did not come within the terms of the legal constitution of the Board. If the Board were allowed to advise, it would free the practitioner's mind from certain doubts as to legality, and enable him better to concentrate on treatment.

Mental Hospital Chaplains.

The BISHOP OF CHELMSFORD and the Rev. W. E. BARNES (chaplain at Hanwell and Cane Hill) gave evidence as to the functions and status of the mental hospital chaplain. Mr. Barnes said that at Hanwell there were about 100 communicants. He felt that his ministrations were specially helpful to sufferers from religious mania. In his experience he had never seen any instance of punitive or vicious ill usage, though he had seen patients suddenly become violent and require prompt restraint.

Offences against the Act.

Sir ARCHIBALD BODKIN, K.C., indicated certain desirable amendments of Section 315 of the Lunacy Act, which deals with the offence of receiving or retaining a lunatic or alleged lunatic otherwise than in accordance with the Act, and with taking charge of such persons for payment in an unlicensed house. He indicated how the distinct offences and the appropriate penalties might be more clearly set out, and said that a more precise wording of the clause relating to detention would be, "Any person who permits, or is party to, the continued residence of a lunatic or alleged lunatic," etc. The present legal provisions did not cover the voluntary patient, who did not go as a lunatic or an alleged lunatic.

London County Council's Evidence.

The London County Council is proposing to give evidence to the Royal Commission to the effect that if power is given on the lines of the Mental Treatment Bill for temporary treatment in approved institutions to uncertified persons suffering from mental disorder, it is desirable that the provision of this accommodation should be the work of the same branch of the local authority's administration as that which has to do with the administration of the mental hospitals. To remove from the Mental Hospitals Committee the making of the necessary arrangements for the care and treatment of incipient cases would tend, in the Council's opinion, to lower the status of the mental hospitals, and would result in much inconvenience in administration. It is also to be urged that in every case in which an order for compulsory detention of a person of unsound mind is made it should be necessary for two medical certificates to be presented to the judicial authority making the order, one of these certificates to be given by a practitioner who has been approved specially for that purpose.

It was reported to the last meeting of the London County Council that the total number of insane patients for whose accommodation in ordinary mental hospitals the Council was responsible on January 1st was 19,060 (7,779 males, 11,281 females), as compared with 18,918 a year previously. In addition there were 213 insane persons in Poor Law institutions, 81 boarded out with relatives or friends, and 4,976, of the chronic, harmless kind, in the institutions of the Metropolitan Asylums Board. In these last categories there was a total decrease of 190 as compared with the previous year.

Scotland.

LORD HIGH COMMISSIONER AND EDINBURGH HOSPITALS.

THE High Commissioner, Lord Elgin, who was accompanied by Lady Elgin, paid a series of visits last week, as representative of the King, to Edinburgh hospitals. On May 21st the Deaconess Hospital of the Church of Scotland was visited. Lord Sands, Chairman of the Board, in receiving their Graces, said that the hospital, which had now existed more than thirty years, had been supported by the whole Church of Scotland, and in a special degree by the Women's Guild of the Church, and during this period it had been continuously successful. On the same day their Graces visited the Royal Blind Asylum, where they were received by the chairman, the Rev. Dr. Burns. They visited the workshops, where, in particular, the operations of basket making, knitting with modern knitting machines, and piano tuning are carried out by the blind. In this connexion it was mentioned by the chairman that in the preceding year seven pupils of the Blind Asylum had passed the examination of the Incorporated Society of Musicians with honours, and two with distinction. Several of the pupils had taken degrees in different Scottish universities. Lord Elgin impressed on those present the necessity for making the very best possible use of the gifts they had, since so many blind workers were doing splendid work despite loss of sight. On May 20th their Graces visited the Royal Infirmary and distributed prizes to the nurses. Lord Elgin, in expressing the pleasure it gave him to visit the Infirmary and to see the useful work which was being done by the aid of the nurses, remarked that the profession of nursing was probably one of the highest ideals that a woman could have. His Grace announced that out of a trust founded by the late Sir James Affleck, an annual scholarship of £30 was to be offered for a course of training in midwifery to be awarded to a nurse by competitive examination.

AFTER-CARE OF MENTAL DEFECTIVES.

The first annual conference of the Scottish Association for Mental Welfare was held in Glasgow on May 8th. Lord Murray, president of the association, who was in the chair, congratulated the members of the association on having established an institution which had already obtained the approval of the statutory bodies and authorities with whom it co-operated. The Board of Control and the Secretary for Scotland had recently given an assurance that the extension of institutional accommodation for mental defectives in Scotland would receive early consideration, and that the expenditure of further capital by local authorities would be favourably considered. A paper was read by Dr. Hamilton C. Marr, one of the Commissioners of the General Board of Control for Scotland, on how continuity of care for the mental defective could best be secured. The association would be greatly helped by an enactment which would enable it to prepare a list of mentally defective persons who were no longer attending special classes and schools under the education authorities, and for whom, on account of financial circumstances or objections by parents and relatives, parish councils undertook no further respon-

sibility. The problem of the mentally defective child presented the greatest difficulties at the age of 16 and when the defective person was approaching the age of 21; for, apart from a few cases requiring temporary or permanent hospital care, the system of education must be continued, and this could only be done in industrial colonies of the closed or open type. Dr. Robert Hughes, school medical officer, Stoke-on-Trent, said that the most difficult cases for adequate supervision were the feeble-minded of higher grades of intelligence but of pronounced temperamental instability. It was an extraordinary paradox that the type of defective who tended to become an intolerable nuisance to society was the one whose training had been least neglected. He did not think that the stabilizing of unstable characters could be carried out with success in any type of day school; some form of residential institution was essential. Dr. Cruickshank, medical officer of the Scottish Board of Health, said that the fundamental requisite in any scheme for continuity of care of mental defectives was first of all completeness of ascertainment followed by accuracy of classification. It might be worth while to consider whether school medical officers could not be induced to take up these questions of ascertainment of mental deficiency and its classification. Sir H. Arthur Rose, D.S.O., chairman of the General Board of Control for Scotland, who presided at the afternoon session of the conference, said that a short time ago, in giving evidence before the Royal Commission on Lunacy and Mental Disorder, which was considering English lunacy administration, he was asked what steps had been taken in Scotland to develop an association on the same lines as the English Association for Mental Welfare, and he had been very glad to be able to reply that this association had been started. Lord Ashmore, president of the Scottish Justices' and Magistrates' Association, said that the feeble-minded were contributing in an ever-increasing degree to the social deterioration of the community. The Legislature had made an effort to minimize the evils by the Mental Deficiency Act of 1913 and by certain education Acts, but, unfortunately, owing to financial considerations legislation had not been carried into operation. Legislation, however, had fallen far short of meeting the demand, because it had not yet recognized the fact that feeble-mindedness endured through life, that it could never be cured, and that from birth till death the feeble-minded required to be looked after and protected. It was urgently necessary in the interests of the feeble-minded and of the public that there should be industrial colonies in which the feeble-minded would be segregated except those cases which were suitable for boarding out.

Voluntary Admission of the Insane to Asylums.

At a meeting of the Edinburgh Women Citizens' Association in Edinburgh on May 13th, an address was given by Dr. W. M. McAlister, deputy physician-superintendent of the Royal Asylum, Morningside. Sir John R. Findlay, K.B.E., presided, and said that not very long ago insanity was generally regarded as a sort of affliction arising no one knew how and to be treated only by restraint in some form or other. As long as that was the only method of dealing with insanity it was necessary to safeguard the rights of the subject, and he was afraid that at the present time the legal position was distinctly behind the medical position. Dr. McAlister referred first to the treatment of mental defectives. Life-long care of the mental defective was necessary, not only for his own sake but for the sake of society as a whole; it was a great mistake to turn defectives loose on the community at the very time when their capacity for injuring the social fabric was about to reach its zenith. Public opinion, he said, must be shaken out of this short-sighted policy, and he commended the Women Citizens' scheme for establishing a colony for the permanent care of the feeble-minded. Apart from mental defectives, a large percentage of mentally diseased people were amenable to treatment, and it was a fallacy to presume that mental disorder must necessarily be permanent or must recur. In Scotland practically all the asylums were under disinterested management, and no individual secured any financial advantage by the detention of a patient. Due care was now taken to see that a patient was really desirous of being admitted to an asylum; and the physician-superintendent regarded his relations with the voluntary patient as being in the nature of a contract between two parties, and satisfied himself that the patient accepted the conditions imposed upon him in his capacity as a voluntary patient. At the Royal Asylum, Morningside, the voluntary admissions had in recent years always been over 50 per cent. of the total admissions. Unfortunately, at present this privilege of voluntary admission was denied to patients supported by the rates; there ought to be one arrangement only, whether the patient were rich or poor. In conclusion, he said that all who were engaged in this type of work welcomed the spirit of public interest which had been so obvious of late.

Post-Graduate Teaching in Glasgow.

The Glasgow Post-Graduate Medical Association has arranged a general medical and surgical course to be held during the last two weeks of August and the first two weeks of September. In the mornings general medicine, surgical diagnosis, and minor surgery will be taught in the Royal Infirmary and in the Victoria Infirmary, and in the afternoons special subjects will be dealt with in the various special hospitals, or in the special departments of the general hospitals, two subjects being treated each afternoon. On the four Saturday mornings there will be classes in tuberculosis and infectious diseases at Ruchill Fever Hospital. The inclusive fee for this course is £10 10s., or alternatively £6 6s. for either the first or second fortnight. Besides this course certain special classes have been arranged in several hospitals to suit the requirements of general practitioners who have but little time to spare for hospital work. In June morning classes in clinical surgery and dermatology will be held, in June and July classes in clinical gynaecology and dermatology, and from the middle of September to the middle of October classes in diseases of the throat and nose, radiology, and venereal diseases have been arranged. Intensive courses are also announced at the Royal Hospital for Sick Children, the Glasgow Eye Infirmary, the Glasgow Royal Maternity and Women's Hospital, the Royal Samaritan Hospital for Women, and the Ear, Nose, and Throat Hospital. Clinical assistantships will be available at various hospitals during the summer months; candidates for these are expected to enrol for a period of three months, and be prepared to devote to the work either the whole or part of the day, according to the terms of the particular assistantship. Further information may be obtained from the Secretary, Glasgow Post-Graduate Medical Association, the University, Glasgow.

Dundee Infirmary Extension.

An extension of the Caird Pavilion of Dundee Royal Infirmary was formally opened on May 15th by Mrs. Marryat, who gave £25,000 for its cost. The extension consists of two operating theatres and a medico-electrical and radiological department of the most modern kind. Mr. Drummond Taylor, chairman of directors, presided. Sir John W. Thomson-Walker, F.R.C.S., said that it was now thirty years since he had been a resident in Dundee Infirmary, and at that time there was only one operating theatre, which had been constructed by walling off the end of a corridor. That theatre had served 176 beds, and he did not think anyone who had not gone through such an experience could tell how exhausting it was to stand four or five hours operating in an inadequate theatre. The extension provided for the surgeons all the means by which they could produce the best work for the patient. Within the past thirty years surgery had become greatly specialized, and in some ways this had been of enormous advantage, for the surgeon could observe the same kind of cases time after time, and could learn more about one special type than before. There was, however, a disadvantage in specialization in that the surgeon was a little apt to go along one narrow line and to forget that the whole body was an interchanging mass. No specialist in surgery could, therefore, do without the general surgeon, just as the medical specialist could not do without the general physician.

Ireland.

HEALTH INSURANCE AND THE MEDICAL SERVICES.

Proposed Amalgamation of Approved Societies.

THE Committee on Health Insurance and Medical Services in its interim report, to which reference was made last week (p. 981), recommends that county insurance committees be abolished and that the approved societies should be amalgamated. From this view, Dr. Rowlette, the representative on the Committee of the Irish profession, dissents, and puts forward a counter-proposal that the whole system of insurance should be nationalized, and should be administered by a State department. He sees in the proposal for a unified society certain dangers:

(1) A society comprising in its membership all the insured persons in the Saorstat would be a formidable commercial combine, so large and so powerful that it would be beyond the control of either the official supervising authority or of the Oireachtas. It would be to the interest of such a combine to gain a power over each of the parties of the State, and to attempt to pervert Government at its source. So far from the diversity of elements in the society tending to prevent its exercising a political power, the fact that it contained very diverse elements would give it all the greater power in the underworld of politics.

(2) The farming out of health insurance to a society created for the purpose appears to be a mere shelving of the responsibility belonging to the State itself. In the words of one of the most experienced witnesses who appeared before us, "Unification would be nationalization without responsibility."

(3) All the evidence put before us by, or on behalf of, insured persons was definitely against the scheme of a unified society, though some witnesses were willing to accept it as a step towards nationalization. The opposition to the latter was much less than to unification, even on the part of those who opposed any change in the present system.

Among some minor reforms as regards national health insurance, a majority of the Committee recommends the abolition of insurance committees and the transference of the care of the tuberculous insured to the local authority.

In regard to the second term of reference, the question of the provision of a system of medical treatment for the insured, the Committee (Mr. McElligott dissenting) accepts the views expressed by the Committee on Medical Benefit (1913) and by the Irish Public Health Council, that medical treatment on a contributory basis should form part of national health insurance. No scheme is put forward, but the Committee goes on to say:

"The provision of medical benefit is mainly a problem of finance. The Committee, in the absence of fuller information as to the funds that may become available from insurance sources (in addition to those at present devoted from various sources to purposes of medical treatment), and as to the position which such arrangements would occupy in relation to the medical charities system, is unable in this interim report to formulate a scheme for the provision of medical treatment. It is hoped, however, that the valuation of the approved societies, the preliminary operations of which are at present proceeding, will be sufficiently advanced by the autumn of this year to enable us to make definite recommendations on the second—as well as on the third—of our terms of reference. Meanwhile we have appointed five of our members as a subcommittee to pursue investigations as to the lines on which schemes for medical treatment might be appropriately laid, due regard being had to the system obtaining at present for the medical relief of the poor. With the outcome of these inquiries before us, the consideration of the financing of it in the light of the valuation results will, it is hoped, be expedited. Under the third term of reference the Committee reviews the present condition of the public services, preventive and curative."

In regard to the salaries paid to dispensary medical officers, the Committee (Mr. McElligott dissenting) states that it accepts the following criticism:

"The salaries of dispensary medical officers, first fixed in the middle of the last century, remained almost unchanged up to the beginning of the present century, in spite of greatly increased cost of living and of the longer course of education required in order to become a medical practitioner. In 1904 the average salary of a medical officer in Ireland was £109. There was a slight gradual increase during the following ten years, and in 1914 the average had become £130. The average salary in the Saorstat is now £251, a sum which does not show much, if any, advance as regards purchasing power on the salary paid in 1904."

The Committee also recommends that "study leave" for a period not less than three months should be granted at least as often as once in every five years, and that evidence of having taken advantage of such opportunities should receive consideration where promotion is in question. During "study leave" the medical officer should, subject to regulations, receive full salary without deduction for payment of a locumtenent: a grant might be provided to cover fees for study. The Committee quotes with approval the recommendations of the Majority and Minority of the 1913 Committee regarding a national medical service, and also the similar recommendations of the Irish Public Health Council. It defers any definite recommendation on this point pending the result of the valuation of the approved societies now in progress. It however expresses the hope that the subcommittee will consider the entire matter in the light of both past reports and of existing conditions, and thus, it is hoped, will enable the Committee to frame a comprehensive scheme which, under some form of national medical service, will combine the medical treatment of the insured with the medical treatment of the poor.

MENTAL HOSPITALS IN NORTHERN IRELAND.

The second report of the inspectors of lunatics (Northern Ireland) covers the year 1923, and contains several statistical appendixes. No marked change in the numbers of patients under treatment occurred during the year; the total number at the end of the year was 4,291, as compared with 4,277 in the previous year; the males increased by 42, but the females decreased by 28. The general arrangements for treatment of mental disorders in Northern Ireland were described in our issue of May 24th, 1924 (p. 931), and no change has been made in them since. The number of insane inmates of workhouses in Northern Ireland has decreased from 222 in 1922 to 204 in the year under review: in a few instances patients were found for whom asylum treatment was required.

England and Wales.

LEICESTER PRIVATE HOSPITAL.

THE new Leicester private hospital, which has been presented by Mr. T. Fielding Johnson, J.P., late chairman of the Royal Infirmary, was opened on May 20th. The hospital at present contains fifty beds, and when more accommodation is needed it will be possible to increase the number to sixty, or even sixty-five. In addition to beds reserved for medical and surgical cases, eight beds on the top floor are provided for maternity cases. A few rooms contain two beds, the majority one only. The general equipment is of the most modern kind: a large electric lift serves each floor; hot and cold water is laid on in every bedroom, and alternative heating by hot water radiators and electric heaters is available. Certain rooms, such as the operating theatre, are specially equipped in order to obtain higher temperatures than the average when required, and heated racks have been installed on each floor for keeping various utensils warm. Special departments, including a good *x*-ray room and a pathological laboratory, are provided. A nurses' duty room is placed on each floor, and contains an electric stove to enable hot food to be prepared at any hour. The patients will be attended by their own medical practitioners, and full telephone facilities have been established. There are two operating theatres, one equipped for eye work. The institution was originally three separate residences, which have been combined. Leicester has thus obtained a private paying hospital quite independent of the Infirmary. It will be administered on hospital lines by a representative committee, affording as far as possible the advantages of a voluntary hospital, and enabling any medical practitioner to treat his own patients under the most modern hospital conditions, with the aid of any consultant whom he may desire. After the opening ceremony a reception was held by Dr. T. V. Crosby, president of the Leicester Medical Society.

INFECTIOUS DISEASES IN SWINDON.

During the twelve months ending March 31st, 1925, the incidence of scarlet fever in the Swindon district was extremely low, only seventeen cases of this disease, together with three cases of scarlet fever complicated with

diphtheria, requiring treatment. This represents the lowest number of patients with scarlet fever ever treated in one year at the Swindon and District Isolation Hospital, being less than a quarter of the next lowest figure, and less than one-tenth of the average; the type of disease was, however, severe. The number of diphtheria patients treated was considerably higher than usual, but the disease was mild. The proportion of patients received from the borough of Swindon was unusually low. The new administrative arrangements at the hospital enabled a large number of diseases to be treated other than those previously considered suitable for accommodation in an infectious hospital, and in this way considerable economies were possible. These diseases included pneumonia, puerperal fever, erysipelas, and nerve diseases. No case of cross-infection of any kind occurred during the year among the patients, and no return case had to be investigated. In his annual report the medical superintendent, Dr. Dunstan Brewer, suggests that it may be advisable in future to deal with other diseases, such as rheumatic fever, influenza, or with infantile diarrhoea. The old idea of reserving wards for a single infection, and leaving them empty when not required for this particular infection, has now been abandoned.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

IN the House of Lords on May 21st, in the course of a debate on land and labour in Kenya, the Earl of Balfour, Lord President of the Council, said that the Government proposed to set up a body resembling the Committee of Imperial Defence to investigate civilian problems, which were becoming more and more insistent in connexion with imperial development. The problems which were arising must be dealt with in a wider spirit and with a greater command of scientific methods than were now at disposal. Such a body would have an immense use as a clearing house of the nation as well as an instrument for acquiring new knowledge.

The House of Commons adjourned on May 28th till June 9th, having read the Finance Bill a second time by 331 to 139 and having discussed the Ministry of Pensions Vote and the claims of ex-ranker officers. Members of Parliament who favour the claim of the osteopaths to statutory registration met on May 26th to arrange for a deputation to the Minister of Health, who will probably see them on June 9th. On May 25th the Minister of Health conferred with the Unionist Health and Housing Group at the House of Commons, Dr. Fremantle presiding.

The Government is understood to desire that Mr. H. A. L. Fisher should become chairman of the promised Committee on Nurses' Registration, and in view of his other engagements the appointment of this Committee may be postponed. On May 25th, on the motion of Sir Leslie Scott, the House of Commons passed the Mental Deficiency (Amendment) Bill through committee and third reading without debate. It now goes to the Lords, and has a good prospect of becoming law this session.

The Powers of the General Medical Council.—Mr. Basil Peto asked the Minister of Health whether he would consider amendment of the Medical Act, 1858, to give a right of appeal to medical practitioners struck off the *Register* by decisions of the General Medical Council holding them guilty of infamous conduct. Mr. Chamberlain replied that he was not aware there was any general demand among the medical profession for the amendment of the Medical Acts in the direction suggested, and in the absence of general agreement he was not prepared to introduce legislation. In a supplementary question Mr. Peto asked whether the Minister thought that the absolutely autocratic power over the lives and careers of the whole of the medical profession given to the General Medical Council by the Medical Act of 1858 required some revision. Sir Henry Craik intervened to ask whether it was not the experience of the Ministry of Health that the action of the General Medical Council had been highly expedient in the interests of health and of the community generally. Answering Mr. Peto, Mr. Chamberlain said that if there were any general feeling among the members of the profession that the powers of the General Medical Council were excessive, he would have no difficulty in ascertaining it. Medical men had not generally been backward in putting forward any grievance they might have.

"*Manipulative Surgery.*"—Mr. Basil Peto asked Mr. Neville Chamberlain whether, in the interest of public health, he would consider legislative action to ensure that persons qualified to give practical instruction in manipulative surgery should have the opportunity of giving it and also of obtaining degrees in this branch of surgery. Mr. Chamberlain said that under the revised medical curriculum adopted by the General Medical Council in 1922 practical instruction in manipulative surgery could be and was given by persons holding registrable medical qualifications. As at present advised, he was not prepared to recommend legislation for the purpose of establishing degrees or diplomas for persons who had not satisfied the statutory requirements of the General Medical Council.

Small-pox and Vaccination.—In reply to Mr. Broad, Mr. Neville Chamberlain gave the ages of the thirteen persons registered in 1924 as dying from small-pox, with the other diseases, if any, mentioned on the death certificates. These deaths were: 10 months, small-pox, marasmus; 15 months, whooping-cough, bronchopneumonia, small-pox; 9 months, small-pox, convulsions; 15 years, small-pox; 2 months, variola; 24 days, small-pox; 22 months, small-pox, measles, convulsions during convalescence; 14 years, cretinism from birth, valvular heart disease, dropsy, small-pox; 28 days, congenital debility, variola; 36 years, haemorrhagic small-pox; 7 years, haemorrhagic small-pox, cardiac failure; 39 years, the same; 52 years, pelvic abscess, small-pox. Mr. Whiteley asked the Minister of Health whether modern methods of vaccination tended to produce faint marks which sometimes disappeared. Mr. Chamberlain said he was advised that the marks produced by modern methods of successful primary vaccination seldom disappeared. Mr. Whiteley asked whether the medical officers of the Ministry based their classification of the vaccinal condition of small-pox cases on the presence or absence of the vaccination marks. Mr. Chamberlain, in reply, gave the five headings under which the chief medical officer of the Ministry classified small-pox cases. One heading was "stated to have been successfully vaccinated, but no vaccination cicatrix present." In reply to Mr. Lee, Mr. Neville Chamberlain said that there were approximately 3,514 public vaccinators in England and Wales; 15 were paid by salary and the rest by fees. Separate information was not available on the number or cost of vaccinations performed by them. Medical officers of Poor Law institutions who were also public vaccinators for such institutions numbered 692, of whom 11 received salaries for this work.

Deaths from Infectious Diseases.—In reply to Mr. Rhys Davies, Mr. Neville Chamberlain supplied the following table:

Year.	Influenza.	Scarlet Fever.	Measles.	Whooping-cough.	Chicken-pox.	Encephalitis Lethargica.	Small-pox.
1915	10,484	2,406	16,445	8,143	92	—	13
1916	8,791	1,381	5,413	6,075	65	—	18
1917	7,289	768	10,538	4,509	69	—	3
1918	112,329	1,020	9,787	9,858	54	16	2
1919	44,801	1,221	3,534	2,605	55	294	28
1920	10,665	1,430	7,190	4,401	71	480	30
1921	8,995	1,305	2,241	4,576	57	329	5
1922	21,493	1,382	5,694	6,370	40	339	27
1923	8,461	993	5,316	4,162	52	531	7
1924	18,986	888	4,834	3,993	59	1,407	13

Tuberculosis.—In answer to Colonel Day, Mr. Neville Chamberlain said the gross expenditure on tuberculosis treatment by local authorities of England and Wales in 1922-23 was £348,718 capital expenditure and £2,749,073 other expenditure. For 1923-24 the capital expenditure was not known, but the other expenditure was £2,766,131. Answering Colonel Heneage, Mr. Chamberlain regretted that the number of persons in Great Britain suffering from tuberculosis in 1924 was not available. He had issued special regulations which would provide reliable data next year of the number of tuberculous persons whose cases had at any time been notified and who were still suffering from the disease at the end of 1925. In England and Wales in 1924, 41,103 persons died from tuberculosis. In England and Wales 72 persons under 15 years of age died from tuberculosis of the glands and bones. He could not say in how many of these cases milk infection was traced. The Medical Research Council's investigations indicated that in 20 per cent. of cases of bone and joint tuberculosis in children which were investigated the infection was of bovine origin. In cases of gland tuberculosis the percentage was considerably higher.

Pensions.—Captain Gee asked the Minister of Pensions whether awards made by medical boards were subject to revision by officials of the Pensions Department. Major Tryon said every award made under the Royal Warrant was in accordance with an assessment by a medical board which had seen and examined the man. The assessment could be referred to a board, but in every case a board which had seen the man made the final assessment. The officials had no power to alter assessments, but the assessors could point out that in their opinion the medical board had assessed a man too high or too low. In reply to a further question by Captain Gee, Major Tryon said that for years there had been arrangements with local institutions whereby the Ministry obtained electro-cardiograms when they were considered medically necessary. As medical examination was carried out at centres throughout the kingdom it was impracticable to provide an instrument at the Ministry. Captain Gee asked whether, through the absence of an electrocardiograph at the Pensions Department, many ex-service men failed to establish their claim for cardiac disability, though, in private hospitals which possessed an electro-cardiograph, they were found to suffer from heart trouble. Major Tryon repeated that the Ministry found it best to use instruments which were locally

available. In reply to questions by other members, the Minister of Pensions said: (1) That he saw no ground for setting up a special committee of medical and other advisers on hardships occurring through the time limit on appeals against final awards where a man's condition had become materially worse or a second or third disability had arisen. (2) That so long as the clinic at Broad Street, Holborn, was in operation, and the Ministry of Pensions had cases which could usefully be sent to it, the department would continue to use it. The clinic belonged to the British Red Cross Society, and the question of closing it was not a matter for the Ministry. (3) That the records of the Ministry of Pensions did not show how many widows, children, or dependants of dead ex-service men were receiving pensions when the cause of death was general paralysis of the insane.

Maternity.—Mr. Groves asked the Minister of Health to urge local authorities to arrange, where the prospective mother was too poor to engage the services of a qualified medical man, that this service should be provided freely. Mr. Chamberlain said that under the Midwives Acts the services of a doctor were available in emergencies without cost to the patient if she was unable by reason of poverty to pay the doctor's fee. The circular of June 30th, 1924, also urged the provision of maternity beds, and in individual cases local authorities were recommended to make good any deficiencies in this respect discovered on inspections by the medical officers of the Ministry of Health. Sir Kingsley Wood said that on May 1st the number of maternity and child welfare centres in operation in England and Wales was 2,368.

Poisoning by Hydrochloric Acid.—Colonel Day asked the Minister of Health the number of deaths caused by drinking spirits of salts during 1924. Mr. Chamberlain said the figure for 1924 was not available. In 1923 the deaths from hydrochloric acid poisoning were 73 suicidal and 7 accidental. These figures did not differ appreciably from those of the two previous years. On the information available there did not seem any ground for increasing the restrictions on the sale of hydrochloric acid, which were already imposed by the Poisons and Pharmacy Act, 1908.

Hospitals.—The Minister of Health hopes to receive the report of the Voluntary Hospitals Commission before the end of June; 963 approved societies with a membership of about 5,000,000 persons include payments to hospitals or convalescent homes in their existing schemes of additional benefit. About £210,000 was spent on this additional benefit during 1924, the greater part being paid in respect of the treatment of members in hospitals.

Silicosis.—The Home Secretary informed Mr. J. Hudson that the Home Office was investigating the incidence of silicosis in the potteries industry. An inquiry into silicosis in the stone industry would be taken in hand next. These inquiries were necessary before a scheme could be framed under the Workmen's Compensation (Silicosis) Acts, 1916 and 1924. Silicosis could not suitably be scheduled under the Workmen's Compensation Act. He was aware of the occurrence of silicosis among men working certain kinds of stone.

Notes in Brief.

The number of accidents resulting in death or personal injury caused by vehicles in Great Britain during 1924 was: Fatal, 3,631; non-fatal, 94,584; total, 98,215. Of the fatal accidents, 3,019, and of the non-fatal, 64,318 were due to mechanically propelled vehicles other than tramcars and trackless trolley vehicles. In London, during 1924, there were 59,122 street accidents in which motor vehicles were concerned.

The Home Secretary hopes to introduce the Coroners Bill very shortly.

Government expenditure for scientific research in 1925-26 is estimated to exceed £4,000,000.

The Minister of Health is not aware that chrysaniline is used by hawkers to colour unripe oranges, but his attention has been called to a case where chrysoidine was used. There is no evidence of toxicity which would justify prohibition of the use of these colouring matters.

Correspondence.

WIDAL'S HAEMOCLASIC CRISIS TEST FOR LIVER FUNCTION.

SIR,—As I was working in Professor Widal's clinic in Paris during the winter of 1923-24, and had, therefore, opportunities for seeing the French technique of this test at its source and for discussing the results with the originators of the method, I may perhaps be excused for making a few comments on Dr. A. F. Bernard Shaw's article in the BRITISH MEDICAL JOURNAL of May 16th (p. 914).

The haemoclasic crisis was discovered many years before any attempt was made to apply it as a test for liver function. In investigating anaphylaxis in its various clinical manifestations it was established that certain phenomena occurred with, or just preceded, the onset of the anaphylactic symptoms. The most important of these phenomena were: a fall in the leucocyte count and in the arterial blood pressure, an increase of the clotting time of the blood, and a lowering of the refractive index of the blood serum. The presence of this haemoclasic "shock" or "crisis" was demonstrated in such varying conditions as angioneurotic oedema, asthma, and paroxysmal haemoglobinuria. Widal has propounded an hypothesis, which is admittedly purely speculative, to explain the phenomena of haemoclasis. He suggests that the colloidal constituents of the body fluids are normally in a condition of equilibrium. In a sensitized individual minute quantities of an incompatible colloid (or even, it is claimed, of a crystalloid) may disturb this equilibrium to a more or less profound degree. This "colloidoclasis" is accompanied by those changes in the blood described as the haemoclasic crisis. Haemoclasis, therefore, is, according to this hypothesis, an indication of some disturbance of "colloidal equilibrium" in the body fluids—a disturbance which becomes clinically evident by the appearance of the symptoms of the various diseases and conditions which are generally recognized as being due to anaphylaxis or "protein shock."

The test for liver function arose out of the foregoing theory. It was argued that an impaired liver would be likely to let imperfectly metabolized protein products pass into the systemic circulation, that these would be likely to produce a mild colloidoclasis, and that this latter could be recognized by the appearance of a haemoclasic crisis. This argument was confirmed by animal experiments. In animals with an Eck's fistula a protein meal produced a haemoclasic crisis, and a similar result was obtained by injecting portal blood from an animal digesting a protein meal into a healthy animal. For the purposes of a clinical test it was therefore proposed to give a fasting subject a protein meal and to watch for the occurrence of a haemoclasic crisis. Furthermore, Widal suggested that for clinical purposes the leucocyte count and arterial blood pressure, being the simplest investigations to perform, would be sufficient to reveal the presence or absence of a haemoclasic crisis.

Dr. Bernard Shaw's main criticism of the test is that there is a normal and physiological variation in the leucocyte count which vitiates the results however careful the technique. In this he is supported by other recent writers, and I think there can be little doubt that the criticism is sound. But this does not necessarily mean that the test is useless. It is peculiarly unfortunate that Widal should have selected as the criteria of a haemoclasic crisis two things which appear to be profoundly influenced by outside factors. Both the leucocyte count and the blood pressure seem to vary from moment to moment in healthy subjects, and there is evidence to show that both may be affected by psychic and emotional disturbances. But we are not, I think, justified in denying that a haemoclasic crisis follows a protein meal in a subject with an impaired liver until the refractive index and the coagulability of the blood have been investigated. Neither of these investigations is very complicated to perform, and it would seem, on the face of it, that they might provide a more reliable indication of the occurrence of a haemoclasic crisis. At any rate, I do not think that Dr. Bernard Shaw is justified in stating that the test "lacks a theoretical basis." Its basis, if anything, suffers from being too theoretical.—I am, etc.,

London, S.W.1, May 24th. MAURICE E. SHAW.

SLEEP AND SLEEPLESSNESS.

SIR,—In Dr. C. P. Symonds's interesting paper on this subject in the JOURNAL of May 9th (p. 869), I note that there is no reference to the use of high-frequency currents as an important method of combating sleeplessness. So far back as 1905 I read a paper in London before the Electro-Therapeutic Society on the benefit obtained in cases of pure insomnia, when pain was not the cause, through the use of high-frequency currents. At the same time I gave notes of the results of this form of treatment.

Drugs, of course, can produce sleep, but they are all more or less poisonous, and the sleep produced by them is not as a rule refreshing. On the other hand, the sleep which follows the application of high-frequency currents is dreamless and childlike; on waking the patient has none of the unpleasant sensations so often caused by the use of drugs, but is refreshed both in mind and body. I have employed

these currents for almost a quarter of a century, and can therefore speak of their value with the utmost confidence. Never have I seen any deleterious results, and the failures have been scarcely worth mentioning.

The method employed has been the condenser couch, 250-800 milliampères being passed through the patient daily. Sometimes high-frequency massage, principally over the skin of the back, was employed, the patient holding an electrode connected with one of the poles, whilst the operator, in direct connexion with the other terminal, completed the circuit by laying his hand on the patient's skin.

It is a common occurrence for patients undergoing high-frequency treatment for some other complaint—for example, neuritis—to offer the unsolicited remark that they are now sleeping much better, and that as a consequence the lethargy and listlessness previously complained of have disappeared.

To the May number (1906) of *Medical Electrology and Radiology* I contributed a paper, illustrated by charts, showing how the surface temperature of the body was raised, even as much as 17° F., by passage of high-frequency currents. With this rise on the surface of the body it is reasonable to conclude that a certain amount of cerebral anaemia occurs, and this may well account for the sleep produced. As a rule also pulse rate and the blood pressure are reduced. Whatever be the explanation, the fact remains that insomnia may be safely, confidently, and successfully treated by the use of high-frequency currents, and this is true of severe as well as of slight cases.—I am, etc.,

Glasgow, May 19th. W. F. SOMERVILLE, M.D.

RELAPSE IN MEASLES.

SIR,—Sir John W. Moore's interesting and informative letter in the JOURNAL of May 16th (p. 946), in reply to the question, Is there such a thing as relapse in measles? prompts me to relate the following: On April 8th last I was called to see a little girl of 5 with all the signs of measles; temperature 103°. The next day the rash was unmistakable and the conjunctivitis severe. There was also much cough and bronchitic signs in the chest. At the end of eight days the child was apparently quite well, except that there was still some swelling of the eyelids.

On the twelfth day I was summoned again, the mother stating that the child's eyes were much worse. The temperature was now 102° and the eye symptoms much more severe. There was also sneezing, recrudescence of the cough, and, to my surprise, a copious rash, which the next day was again absolutely typical of measles. The second attack ran almost as severe a course as the first, but the child is now recovering, although much debilitated.

At no time was there any resemblance to either German measles or scarlet fever.

As a matter of interest, I might add that I have seen two or three cases of measles in children under 3 months during this last epidemic.—I am, etc.,

Llanelly, May 19th. OSCAR WILLIAMS, M.B., B.S.Lond.

CLEAN MILK.

SIR,—I think that Dr. Chalmers Watson is mistaken in imagining that Scottish local authorities are unaware of the value of graded milk, or that Paisley is a pioneer in the matter.

The Anderson Sanatorium for Tuberculosis at Hawick has been supplied with Grade A tuberculin-tested milk since last August, and the South-Eastern Counties Joint Sanatorium at East Fortune, under my friend Dr. Cameron, has been similarly supplied for a considerable time. The East Fortune institution serves the counties of Midlothian, Peebles, West Lothian, East Lothian, Roxburgh, Selkirk, and Berwickshire. It may be worth stating that the Burgh of Hawick (about 16,000 inhabitants) has two sources of supply, and that there are four in this county, with a fifth about to start. One dairy company draws its supply from without the county—namely, from Cumberland. The tuberculosis authority of the county of Roxburgh is keenly interested in the matter of clean milk, and draws attention to milk dangers in its domiciliary pamphlet.

While writing of milk, I would like to add that milk is not necessarily clean because it is distributed in bottles. The public should know that graded milk and milk in bottles are not always the same thing. Experience has led me to believe that this point is not appreciated by everyone.—I am, etc.,

Newtown St. Boswells, May 23rd. G. B. PAGE, M.D.

INDIVIDUAL MEDICAL DEFENCE.

SIR,—Dr. Henry Robinson states (May 9th, p. 904) that in my letter (May 2nd, p. 861) I glozed over the issue of "the overwhelming importance of a large reserve fund to a medical defence society," and then reiterates that the present societies have large reserves, while the proposed British Medical Association society will have none. Why does he harp so much on one string? The chorus in which he is joined by Dr. Tracy Lydall will get rather monotonous.

It is obvious that a reserve fund is important to an insurance society, especially if it is to carry the whole of its liabilities. But in these days of re-insurance reserve funds are of less importance, especially to a medical defence society, than a sure steady premium adequate to meet the risks. Dr. Robinson's society insures with the Yorkshire Insurance Company: a wise course, and I cannot understand why he wishes me to "withdraw unreservedly" the paragraph in my letter of May 2nd dealing with this relationship. I am willing to do so if he will point out where I am in error. I have no wish to create a wrong impression, and, to avoid this, perhaps I should explain that some years ago the Medical Defence Union issued separate policies of the Yorkshire Insurance Company to its members. For each of these policies a premium of 7s. 6d. was charged, and the insured was covered, subject to the conditions of the Union, up to £2,000. Now these separate policies have been discarded and the Union pays a lump sum to the company. In 1922 it paid £1,280 3s. 9d. for 9,375 members, which works out at 2s. 9d. a member. These figures are taken from the balance sheet of the Union. Since the Harnett case the Medical Defence Union and the London and Counties Medical Protection Society have given unlimited cover without increase of subscription. This does not mean that their reserve funds have increased to an unlimited extent; it means that the premium for re-insurance has been increased proportionately to meet the increased liability; or it may even mean that, owing to increased membership, the premium per capita is not increased, although there is increase in the total sum. As regards the new company, I have every confidence that the Council of the Association will be able to work out a sound scheme of finance, and if it should require a guarantee fund for a short period to allow the company to get established, an appeal from it would not go unanswered.

I come now to the much more difficult question of the relationship of a defence society to serious professional misconduct involving the honour of the profession, and only indirectly affecting the public. I must thank Dr. Robinson for so promptly answering my question whether his society would prosecute one of its own members before the General Medical Council for a grave professional offence. Dr. Gillbard thinks this a naïve query, but why should he assert that it settles the case against the Association taking up medical defence, when an experienced manager like Dr. Robinson states that such action would be *ultra vires*? In illustration of the difficulty, allow me to quote an instance.

In 1923 a defence society, at the instance of Dr. X, one of its members, prosecuted Dr. Y, a member of another society, before the General Medical Council for alleged advertising and canvassing. This was quite a legitimate case of one defence society against another. But what would the position have been had Dr. X and Dr. Y both been members of the same society? (I suppose it was merely a matter of chance that they were not). In such a case, according to Dr. Robinson, Dr. X could not have gone forward with his charge through the defence society against Dr. Y. He would have had to do it privately at his own expense, and Dr. Y would have been defended by the society of which Dr. X was also a member. It seems a curious position.

When the question of indirect advertising came into prominence the General Medical Council was very loth to issue a Warning Notice (which it eventually did) without a case being brought before it. Of course, no one would

undertake, nor was there any organization willing to undertake, the heavy expense and worry of bringing a case to the seat of judgement.

All this goes to show that the organization of the profession is very incomplete, and those who think that the proposed Association company would be at a disadvantage with regard to G.M.C. cases as compared with the existing defence societies should realize that these societies are equally tied in respect of their own members. The proposed society will have one advantage that the other societies lack, and that is the help of the ethical machinery of the Association for adjudication of professional differences. Those interested in this topic will find in Section V of the Association's *Handbook* a lucid and comprehensive statement on medical ethics, and they will appreciate how naturally and logically the objects and rules of the proposed society will fit in and follow para. 128 in future issues of the *Handbook*. Dr. Bolam has done much to improve medical organization by co-operation with the Society of Medical Officers of Health, and I trust that with the capable assistance of Dr. Morton Mackenzie (whom I must thank for the information in his letter published on May 9th), he will be able to make another advance after the Representative Meeting at Bath.—I am, etc.,

Warrington, May 10th. J. S. MANSON.

Medico-Legal.

REX *v.* BATEMAN.

CONSIDERED JUDGEMENT OF COURT OF CRIMINAL APPEAL.

IN the Court of Criminal Appeal, on May 25th, the Lord Chief Justice of England (Lord Hewart) delivered the considered judgement in the appeal of Dr. Percy Bateman of New Cross Road, London, against his conviction and sentence at the Central Criminal Court for manslaughter. The appeal was heard on February 9th, and the proceedings on the previous application for leave to appeal and on the appeal itself were fully reported in the BRITISH MEDICAL JOURNAL, February 7th (p. 285) and February 14th (p. 334). It will be remembered that the appeal was allowed and the conviction quashed, but the Lord Chief Justice, in announcing this decision, stated that in view of the importance of some, at any rate, of the questions raised the court proposed to consider its judgement and deliver it on a later date.

At the delivery of the considered judgement the Lord Chief Justice was accompanied by Mr. Justice Salter; Mr. Justice Fraser, who also heard the appeal, was absent.

The Facts of the Case.

The Lord Chief Justice began by summarizing the facts of the case. The appellant, Percy Bateman, was convicted at the Central Criminal Court, before Mr. Justice Shearman, for manslaughter, and was sentenced to six months' imprisonment in the second division. He appealed, by leave, against that conviction and sentence. The court, after hearing arguments of counsel, quashed the conviction and intimated that a considered judgement would be delivered at a later date.

The appellant, who was a qualified medical practitioner, was indicted for having, on July 30th, 1924, unlawfully killed one Mary Ann Harding, whom he had attended in childbirth. He was called in by the midwife to attend the woman on July 23rd, and found an unusual and difficult presentation. He administered chloroform and attempted, unsuccessfully, to effect delivery by instruments. No blame was imputed to him on that account. He then proceeded, by using his hands, to perform the operation known as version, employing, of necessity, considerable force. He worked at this operation for an hour, and then delivered the child dead. By mistake he removed, along with the placenta, a portion of the uterus. The patient was much exhausted, and the appellant did not expect her to live. He visited her twice daily until the 28th. Although requested by her husband and the midwife to have her removed to the infirmary, he did not have her so removed until the 28th. On admission to the infirmary she was found unfit to undergo an operation, and she grew gradually weaker and died on the 30th. At the *post-mortem* examination the bladder was found ruptured, the colon was crushed against the sacral promontory, there was a small rupture of the rectum, and the uterus was almost entirely gone.

The charges of negligence made against the appellant were in substance three: (1) causing the internal ruptures on performing the operation of version; (2) removing part of the uterus along with the placenta; (3) delay in sending the patient to the infirmary. For the defence it was contended that (1) and (2), in the difficult circumstances of the case, were not inconsistent with a fair degree of care and competence, and, as regards (3), that to have removed the patient at an earlier date would have accelerated her death. At the hearing of the appeal counsel for the appellant urged misdirection on law, misdirection and non-direction on the facts, and that the verdict was against the weight of the evidence.

The State of the Law.

Before dealing with the directions of the learned judge to the jury it was desirable to consider generally the state of the law on this subject. In expounding the law to juries, judges had often referred to the distinction between civil and criminal liability. The law of criminal liability was conveniently explained in that way. If A had caused the death of B by alleged negligence, then, in order to establish civil liability, the plaintiff must prove, in addition to the pecuniary loss, that A owed a duty to B to take care, that that duty was not discharged, and that such default caused the death of B. To convict A of manslaughter it was necessary, in addition to these three things, to satisfy the jury that A's negligence amounted to a crime. In a civil action, if it was proved that A fell short of the standard of reasonable care, the extent of the liability depended, not on the degree of negligence, but on the amount of the damage done. In the criminal court, on the contrary, the amount and degree of negligence were material questions. The difference between "negligence" and "gross negligence" was illustrated by the case of Cashill *v.* Wright (as reported in *Ellis and Blackburn*, vol. 6). This was an action against an innkeeper by a traveller for the loss of certain goods stolen from him while putting up at the inn. The defendant contended that the loss had been occasioned or contributed to by the negligence of the plaintiff. At the trial the jury were directed that the defence failed unless they thought the plaintiff had been guilty of gross negligence, and the verdict was for the plaintiff. The case was carried to appeal before Lord Chief Justice Campbell, Mr. Justice Woodman, Mr. Justice Erle, and Mr. Justice Crompton, and Mr. Justice Erle (as he then was), in delivering the judgement of the Court, said:

> "The other question was as to the alleged misdirection in the direction to the jury that there must be gross negligence, to maintain the defence. It does not appear that there was any information given to the jury as to what they were to understand by gross negligence. If they were told to understand by gross negligence the absence of that ordinary care which, under the circumstances, the prudent man ought to have taken, as seems to have been the meaning given to gross negligence in some of the modern cases cited before us, the direction as to the degree of negligence might not have been objectionable; but the legal meaning of gross negligence is greater negligence than the absence of such ordinary care. It is such a degree of negligence as excludes the loosest degree of care and is said to amount to dolus."[1]

The rule was made absolute.[2]

The Lord Chief Justice continued:

In the directions to juries on the test to apply in order to determine whether or not negligence amounted to a crime judges have used many epithets, such as "culpable," "criminal," "gross," "wicked," "clear," "complete." But whatever epithet is used, and whether an epithet is used or not, to establish criminal liability the facts must be such that, in the opinion of the jury, the negligence of the prisoner goes beyond a mere matter of compensation between subjects, and shows such disregard for the life and safety of others as to amount to a crime against the State and conduct deserving of punishment. It remains to consider the application of this principle to cases like the present in which there is alleged negligence on the part of a person possessing special knowledge and skill against whom a charge of manslaughter is preferred.

The Possession of Special Knowledge and Skill.

The Lord Chief Justice here mentioned the titles and references in the legal case-books of some eighteen cases which, he said, illustrated this point. They included several of the cases mentioned in the arguments during the hearing of the appeal. He continued:

The law as laid down in these cases may be thus summarized. If a person holds himself out as possessing special skill and knowledge, and he is consulted as possessing such skill and knowledge by or on behalf of a patient, he owes a duty to his patient to use due caution in undertaking the treatment. If he accepts the responsibility and undertakes the treatment, and the patient submits to his direction and treatment accordingly, he owes a duty to the patient to use diligence, care, knowledge, skill, and caution in administering the treatment. No contractual relationship is necessary, nor is it necessary that the service shall be rendered for reward. It is for the judge to direct the jury what standard to apply, and for the jury to say whether that standard has been reached. The jury should not exact the highest or a very high standard, nor should they be content with a very low standard. The law requires a fair and reasonable standard of care and competence. This standard must be reached in all the matters above mentioned. If the patient's death occurs it will not avail for the defendant to show that he had sufficient knowledge, nor that he was diligent in attendance, if the patient was killed by his unskilfulness and carelessness. As regards cases where incompetence is alleged, it is only necessary to say that there an unqualified practitioner cannot claim to be measured by any lower standard than that which is applied to the qualified man. As regards cases of recklessness juries are likely to distinguish between the qualified and the unqualified man. There may be recklessness in undertaking the treatment and recklessness in the conduct of it. It is conceivable that a qualified man may be held liable for undertaking a case which he knew or should have known was beyond his powers. In the case of a quack, where the treatment has been proved to have been incompetent, and to have caused the patient's death, juries are not likely to hesitate in finding liability on the ground that the defendant undertook and continued to treat his case involving the gravest

[1] "Dolus" in civil law means malicious or criminal intent.
[2] This case of Cashill *v.* Wright was decided in 1856.

risk to his patient when he knew he was not competent to deal with it.

The foregoing observations deal with civil liability. To support an indictment for manslaughter the prosecution must prove all the matters necessary to establish civil liability (except pecuniary loss) and, in addition, must satisfy the jury that the negligence and incompetence went beyond a mere matter of compensation between subjects, and showed such disregard for the life and safety of the patient as to amount to a crime against the State and conduct deserving of punishment.

The Summing up of Mr. Justice Shearman.

The Lord Chief Justice next addressed himself to the summing up of Mr. Justice Shearman at the Central Criminal Court, and read several lengthy passages. At the outset of the summing up the learned judge had said:

"The law is that anybody who causes the death of anybody else—it does not only apply to a doctor, it applies to motor drivers, railwaymen, or signalmen, it applies to a number of people—anybody causing the death of anybody else is criminally responsible. It is equally clear law that no one is criminally responsible for what I call making a mere mistake, and it is really for the jury to draw the line between what is called making a mere mistake, an error of judgement, and doing something which is grossly and palpably wrong. I have only one objection to make to the law as put before you by the counsel for the defence: that a man is bound to do [? act] to the best of such skill as he has. That is not quite accurate. A medical man who practises for profit the medical profession professes skill: he does not come and say, 'I am an unskilled person'—he is engaged and professes skill. Of course, you will understand it is not for every humble man of the profession to have all that great skill of the great men in Harley Street; but, on the other hand, they are not allowed to practise medicine in this country unless they have acquired a certain amount of skill; they are bound to show a reasonable amount of skill according to the circumstances of the case, and you have to judge them on the basis that they are skilled men, but not necessarily so skilled as more skilful men in the profession, and you can only convict them criminally if in your judgement they fall below the standard of skill which is the least qualification which any doctor should have. You should only convict a doctor of causing a death by negligence if you think he did something which no reasonably skilled doctor should have done."

The learned judge had continued:

"You have got to consider if this man in anything he did fell below the level which you expect of a doctor—below that degree of skill which you think you have a right to expect of a doctor—by no means the extreme skill which everybody knows of, but that degree of skill which you expect from a doctor who attends an accouchement and who is taken to know his business."

In the course of his review of the evidence the learned judge referred to the law in the following passages:

"It is said that this man so treated her that by his treatment he committed all these injuries, he ruptured the womb, he ruptured her bladder in pushing about, and he caused the injuries to her intestines; and in the same way it is said that when he came to pull out the placenta, instead of pulling the placenta out of the womb he caught hold, not of the placenta, but of some tear or slit in the torn womb, and with a tug—the expression was a 'sharp pull'—he pulled it away. It is said by the Crown that that shows that in doing this, and in pulling out the womb, he was guilty of gross negligence. It is said on behalf of the defence—and they called eminent surgeons—'Well, the nurse saw nothing wrong with the way he treated her, although the force was used and was necessary, and it was unfortunate.' It is said that there was no gross negligence, and it is for you, if you feel any doubt, to see that the prisoner gets the benefit of the doubt, but are you satisfied on that that there was gross negligence? The doctors called for the defence say this: they say, 'Oh, it is quite reasonable to mistake a tear in the womb for the placenta.' That is entirely a matter for you, and it is a view not entirely accepted by the doctors called for the prosecution, although they agree in cross-examination that after all this working a portion of the womb might be torn, but a reasonably skilful man might note the difference between pulling the womb and something that might be adherent to the inside, and the prosecution call attention to the fact of the steady outflow of the blood, and say that in pulling out the womb he was guilty of gross negligence, and the defence was, a very natural mistake, in the circumstances of the case."

Again, to continue the quotation:

"The Crown first of all say there was gross negligence, and you will not find it unless you are quite satisfied of it, in pulling away the womb at all—in what he did before and in pulling it away. It is suggested by the defence, nothing of the sort: at most and at worst it was a mistake, and we say it was not negligence, it was the sort of thing that might happen in this remarkable case."

And again:

"Passing away from that and summing up the first case, if you think and are satisfied that it was his treatment in tearing away the womb—previous to and up to tearing away the womb—you will convict him; if you are not satisfied and think there was no negligence at all, or if you have a reasonable doubt whether there was gross and culpable negligence, up to that point you will acquit him."

Again:

"That, substantially, is the case for the Crown on the second part of the case, and they say substantially he was guilty of grave, wicked negligence and culpable neglect of duty in not taking some steps to remedy what had been done by his own fault; or if you do not think it was gross negligence they say he ought to have done something to try and save this woman's life, but he did not do anything because he wished to save his own reputation."

Again:

"Those are the historical facts. Do you think, assuming you are satisfied by the prosecution that in pulling away the womb at all and the acts preceding, that he was guilty of gross negligence and culpable negligence in causing her death?

"Then you come to the second head. Was he guilty of gross or culpable negligence in accelerating this woman's death by so neglecting her from the time that he knew her uterus had been removed? If you are quite satisfied that the woman wanted treatment and, from the history of the case, that if she had had some treatment her life would have been prolonged, you will find him guilty; if you have any doubt about it you will find him not guilty. I would remind you of what I said to you at the outset that you have to be satisfied, not only that he was guilty of gross and culpable negligence, but that he caused or accelerated her death. . . .

"That is the whole case. If you are satisfied that either in the way he delivered the child or in the way he acted afterwards he acted with gross negligence and thereby caused her death, you will find him guilty; if you are not satisfied you must acquit him on that part of the case. If you think that after the womb had come away his conduct and neglect of her substantially accelerated the date of her death—if you are satisfied of that, you will convict him on that part of the case. If you feel any reasonable doubt on either theory you will give him the benefit of the doubt and acquit him."

The Lord Chief Justice went on:

So far the passages from the summing up. If the words "gross," "wicked," and "culpable" are put aside, this summing up amounts to a direction to the jury that they must draw the line between mistake or error of judgement on the one hand and carelessness and incompetence on the other. If there was only mistake or error of judgement there was no liability, but if there was anything short of the average degree of care and competence then there was liability. Such a direction would be complete and adequate on a trial of an action for damages; it was not adequate for trial for manslaughter. There is a frequent use of the adjectives which have always been used in these cases, and for this reason this court as a whole is of opinion that there was no misdirection. It is, nevertheless, most desirable that in trials for manslaughter by negligence it should be pressed on the jury that the issue is, not negligence or no negligence, but felony or no felony. It is desirable that as far as possible the explanation of criminal negligence to a jury should not be a mere question of epithets. It is in a sense a question of degree, and it is for the jury to consider the degree; there is a difference in amount between the negligence which gives a right to compensation and the negligence which constitutes a crime.

The learned judge was invited to withdraw the first and second charges from the jury. He declined to do so. The learned judge left all three charges to the jury. The jury returned a general verdict of "Guilty." In the opinion of this court there was no evidence to support the first charge (that based on the manner in which the accused performed the operation of version). A strong defence was presented on the third charge, and it might well be that the jury relied largely on the first and second charges. If the first charge had been withdrawn from them it is impossible to say they would certainly have convicted. For this reason the conviction could not stand.

THE "E.R.A." CULT.

NEW ZEALAND PRACTITIONER STRUCK OFF THE REGISTER.

ON the motion of the New Zealand Medical Board, the name of Henry Dundas Mackenzie, medical practitioner of Auckland, was ordered by Mr. Justice Herdman, sitting in the Supreme Court of New Zealand, on March 30th, 1925, to be removed from the *Medical Register of New Zealand*, two years being fixed as the time after which he may apply for re-registration. The hearing of the action lasted nine days.

Dr. Mackenzie is a graduate of the Homeopathic Medical College, Missouri, U.S.A.—not now existing—and commenced practice in New Zealand in 1896. In 1920 he spent a few months in the clinic of Abrams at San Francisco, studying electronic reactions alleged to be obtained by the use of the Abrams box, and upon his return to Auckland with a diagnostic outfit, and an oscilloclast, or treatment machine, set up as a specialist in cancer, the words "Cancer and chronic diseases" being inscribed upon his door-plate. On August 16th, 1924, Mrs. Lawrence, of Hamilton, New Zealand, was awarded £2,000 damages against Dr. Mackenzie for negligence in the diagnosis and treatment of a cancerous growth of the breast.

On the motion for the removal of Dr. Mackenzie's name from the *Medical Register*, the New Zealand Medical Board alleged that he had been guilty of infamous conduct in a professional respect in practising the Abrams method of diagnosis and treatment in such a manner as to show that he could not honestly have believed it was a reliable or useful method in the cases in which he employed it.

Judgement of the Supreme Court.

Mr. Justice Herdman, in his judgement (which we quote from the *New Zealand Herald* of March 31st, 1925), said Dr. Mackenzie admitted that he held himself out as a "cancer specialist," although it did not appear that he ever had any special training which justified this title. It was well known that in ordinary practice there was a substantial percentage of error in diagnosis, and Dr. William Pettit, who used clinical methods as well as the Abrams apparatus for the purpose of diagnosis, admitted that the percentage of error with the Abrams machine might be from 50 to 60 per cent. Evidence called went to prove that in certain instances, at any rate, Dr. Mackenzie relied for his diagnosis upon the Abrams machine alone, and never attempted to get corroboration of his finding by employing common clinical diagnosis methods. The contention of the Medical Board was that his actions and his methods proved that he had no honest belief in the Abrams system or the apparatus, and that he used it not so much for the purpose of discovering and treating disease as for the purpose of enriching himself. It was difficult to understand why in one case Dr. Mackenzie, possessing as he did expert knowledge which

enabled him to find the ulcer, and knowing that two other practitioners had diagnosed cancer, should not have attempted to consult the other men, or get some independent opinion, before accepting the final responsibility of finding a verdict against cancer. Time was of supreme importance in such a case as this. Every day that passed lessened the patient's chances of living. Unfortunately, in this instance (the judge continued) the Abrams machine in the hands of Dr. Mackenzie failed to detect a cancer which, in the opinion of other practitioners, was discoverable with ease.

In another case Dr. Mackenzie had announced after a machine test that the patient had cancer, whereas upon the evidence it seemed plain that the lady had not, and never had, cancer, and that there was no shadow of justification for suddenly making the startling announcement that she was the victim of a deadly disease. There was no evidence of any kind that Dr. Mackenzie endeavoured to fortify the opinion that he had formed from the machine by any clinical examination or by suggesting that any other opinion should be obtained. If he (the judge) accepted the patient's statement, then Dr. Mackenzie deliberately terrified the woman and strove to keep her out of the hands of legitimate practitioners. In the judge's opinion the inference that Dr. Mackenzie's conduct throughout that case indicated that he had any honest belief in the merits of the Abrams machine could not reasonably be drawn. The bogy of cancer had been raised in so many of the cases investigated during the hearing of that motion, and raised without any justification, and the advantages of Dr. Mackenzie's special treatment were so consistently stated, that one was forced to conclude that it was all done deliberately, and with a purpose, the purpose being to keep patients away from the practitioner who practised the sciences of medicine and surgery in accordance with principles that were generally recognized as being sound, and to force them into accepting treatment which brought substantial remuneration to the practitioner who raised the cry "cancer." Dr. Mackenzie's definitions of the disease he described as "carcinosis" were a medley of contradictory and unsatisfactory statements, altered as the circumstances of the case changed, whilst his rough announcement to a woman who was afterwards successfully operated upon for fibroid tumour, that she had cancer, was conduct which could not be described in language of moderation. It was with regret that he found himself driven to infer from the facts proved that with Dr. Mackenzie the Abrams system was only a means to an end. It was a means used primarily, not for the purpose of discovering disease and treating disease, but it was a means by which credulous people were attracted to the surgery where false hopes were raised and money easily gained. The judge referred to the refusal of Dr. Mackenzie to allow an impartial test of the system of diagnosis from blood, or from handwriting. If Dr. Mackenzie wished the truth told, why did he burke an investigation? The personnel of the proposed committee could not be objected to. It was ridiculous to suggest that any one of the gentlemen proposed to make the test would be guilty of dishonesty and fraud. As to the witnesses produced by the defence, to his mind there was no conclusive and convincing proof that cure or improvement spoken to by them was traceable to the Abrams method. The trial of the system was refused, and he could only conclude that those who refused such trial had no confidence in it. If there existed this lack of confidence—and it did exist—then this fact went a long way to prove that Dr. Mackenzie in his own mind must have doubted the soundness of the system. It seemed to him that one inference only could possibly be drawn from the accumulation of fact and circumstance before him—that Dr. Mackenzie had no honest belief in the usefulness and reliability of the system that he practised.

If a practitioner, in the practice of his profession, adopted and used a system in which he had no belief, then he accepted reward for services rendered by him which he must believe to be of no value. If he led the public to believe that the system in which he had no faith could detect disease and could be used to check or cure disease, then he was not acting honestly and in good faith, and he brought himself within the words of the statute and was guilty of "infamous conduct in a professional respect." It was not enough for Dr. Mackenzie to say that he believed in the system. That bare statement standing alone would not justify him when the facts were against him, when those upon whom the onus rested had shown that his acts and conduct had set at defiance the principles of professional honour and credit. In these proceedings that onus had been discharged, and Mr. Justice Herdman found himself obliged to come to the conclusion that the charge against Dr. Mackenzie had been proved.

Notice of appeal has been lodged.

Universities and Colleges.

UNIVERSITY OF OXFORD.

AT a congregation held on May 23rd the degree of doctor of medicine (D.M.) was conferred on H. E. A. Boldero.

UNIVERSITY OF LONDON.

DR. E. C. DODDS has been appointed to the University Chair of Biochemistry tenable at Middlesex Hospital Medical School.

The title of Emeritus Professor of Bacteriology in the University has been conferred upon Professor R. T. Hewlett as from August 1st, 1925, on his retirement from the University Chair of Bacteriology, in consequence of the closing of the department of bacteriology and public health at King's College.

The degree of D.Sc. in Physiology has been conferred upon Mr. B. Babkin, an internal student of University College.

Dr. R. A. Young has been appointed to represent the University at the annual conference of the National Association for the Prevention of Tuberculosis to be held in London in July next.

Sir Holburt Waring will represent the University at the Imperial Social Hygiene Congress to be held at the British Empire Exhibition at Wembley in October next.

The semi-general election of members of the Senate for 1925-28 has resulted in the appointment of the following medical representatives by the bodies indicated: Convocation—Medicine, Dr. E. Graham Little, M.P.; Royal College of Physicians of London, Sir Wilmot Herringham, K.C.M.G., C.B.; Royal College of Surgeons of England, Mr. James Sherren, C.B.E.; City and Guilds of London Institute, Dr. G. Newton Pitt; Faculty of Medicine, Sir Holburt Waring.

LONDON HOSPITAL MEDICAL COLLEGE.

The prize distribution at the London Hospital Medical College will take place on Tuesday next, June 2nd, at 3 p.m., when Dr. Charles H. Mayo of Rochester, U.S.A., will present the certificates.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

AT a meeting of the College held on May 20th, Sir Harold J. Stiles (President) in the chair, the following twenty-four successful candidates, out of fifty-five entered, who had passed the requisite examinations, were admitted Fellows:

Robert Findlay Allan, Captain Bijitendra Basu, I.M.S., Edward Jocelyn Bilcliffe, Innes Wares Brebner, Russell Exon Butchart, Edwin Clark, Harold Keith Corkill, Daniel de Bruyn, John Alexander Doctor, Francis Henry Edwards, Frank Llewellyn Gill, Alan Britten Jones, Gilbert Edgar José, Roshan Lal Khera, Richard McAllister, Joseph Arthur MacFarlane, Colin Campbell Maclaurin, William John Payne, Clive Justin Hicks Sharp, Sydney Scott Sumner, Cecil Henry Terry, Geoffrey William Theobald, John Maurice Watters, John Edward Wright.

The Bathgate Memorial Prize, consisting of bronze medal, set of books, and instruments, was, after a competitive examination in materia medica, awarded to Sydney Whyte Cruickshank, and the Ivison Macadam Memorial Prize in chemistry, consisting of bronze medal and set of books, was awarded, after competitive examination, to Frank Kerr Fenton.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have passed in the subjects indicated:

SURGERY.—F. T. Birkinshaw, M. R. Burke, T. G. L. Davies, N. B. Ibrahim, C. S. Netscher, R. J. Rutherford.

MEDICINE.—S. J. Alexander, M. R. Burke, J. H. Clapp, J. Herbert, P. H. Knowles, O. W. Percival, W. I. Pierce, J. Maingard, R. J. Rutherford, B. Temple-Raston, I. Waynik, M. E. G. Wilkinson.

FORENSIC MEDICINE.—S. J. Alexander, F. T. Birkinshaw, J. H. Clapp, D. T. Jenkins, I. H. Mackay, J. Maingard, C. J. Rozario, J. Shutt, B. Temple-Raston.

MIDWIFERY.—S. J. Alexander, F. T. Birkinshaw, A. F. Briglmen, D. T. Jenkins, E. W. D. Long, M. E. G. Wilkinson.

The diploma of the Society has been granted to Messrs. M. R. Burke, T. G. L. Davies, D. T. Jenkins, J. Maingard, O. W. Percival, R. J. Rutherford, and B. Temple-Raston.

Obituary.

THE MALARIA COMMISSION IN PALESTINE.

A TERRIBLE accident befell the members of the League of Nations Malaria Commission in Palestine. A party of five were returning from Beit Meri, a summer resort ten miles from Beyrout, when their car overturned and three members were killed—Major N. V. C. Lothian, R.A.M.C.(ret.), Dr. Samuel Darling, a representative of the Pan-American Health Committee of Washington, and Mlle Besson. Mme Delmas, wife of the chief medical officer of the French Army of the Levant, was seriously injured. Dr. Schwellengrebel, a Dutch representative, and the driver, a Frenchman, were slightly injured.

Major Lothian was nearly 38 years of age, having been born on July 31st, 1887. He was educated at Glasgow University, where he graduated M.A. and B.Sc. in 1909 and M.B. and Ch.B. in 1912. He took the D.P.H. and D.T.M. at Cambridge in 1919, and also held the certificate of the Medico-Psychological Association. After graduation he filled the posts of house-physician of the Glasgow Western Infirmary, house-surgeon of the Glasgow Royal Infirmary, and medical officer of the Stirling District Asylum at Larbert. He took a commission as lieutenant in the Special Reserve of the R.A.M.C. on May 8th, 1913, and transferred to the regular army in the same rank in January, 1914. He became captain in the great war promotion list of March 30th, 1915, and was given a brevet majority in June, 1919; he retired in April, 1923. He served during the war in charge of a divisional sanitary section, and for three years as a D.A.D.M.S. in the Near East, mainly on epidemiological work. He was mentioned in dispatches in the *London Gazette* of January 1st, 1916, December 6th, 1916, and November 28th, 1917, received the Military Cross on January 1st, 1918, and was also awarded the French Croix de Guerre.

Medical News.

ON May 25th, at the Royal Society of Medicine, Sir William Collins presented the Chadwick gold medal and prize to Wing-Commander Whittingham, R.A.F. Professor Emile Brumpt, of the Paris Faculty of Medicine, delivered a Chadwick public lecture on the conduct of an antimalarial campaign, illustrating his remarks with more than a hundred epidiascope illustrations to demonstrate the breeding places of mosquitos in all parts of the world, and various researches into the life-history of the parasite and preventive measures. Professor Brumpt's next lecture will be on May 23th, at 5.15 p.m., in the lecture hall of the Royal Society of Arts, on the prophylaxis of sleeping sickness. Further particulars of the Chadwick lectures may be obtained from the secretary at the offices of the Chadwick Trust, 13, Great George Street, Westminster.

THE next meeting of the Section for the Study of Disease in Children of the Royal Society of Medicine will be held at Cambridge on June 20th in the biochemical laboratory. At 2.30 p.m. a paper will be read by Dr. Kay and Dr. Vines on bone formation and experimental rickets. After tea Dr. J. F. Gaskell will contribute a paper on the relation of experimental pneumonia in rabbits to the pneumonias of childhood. The members will dine together at 7 p.m.

THE annual prize-giving at St. Thomas's Hospital Medical School will take place on Tuesday, June 23rd, at 3 p.m., in the Governors' Hall. The prizes will be distributed by H.R.H. the Duke of Connaught, and tea and music will be provided on the terrace.

THE Fellowship of Medicine announces that the first of the new series of lectures will be given on June 9th, when Sir Thomas Horder will speak on "Some cases of fever without physical signs." The lectures are to be delivered at No. 1, Wimpole Street, at 5.30 p.m. A four weeks' course (from June 2nd to 27th) in venereal diseases will be given at the London Lock Hospital (Dean Street), and a course in dermatology at St. John's Hospital for Diseases of the Skin. From June 3rd to 25th, eight clinical demonstrations on the more important diseases of tropical countries will be given at the London School of Hygiene and Tropical Medicine, by Dr. Low and Dr. Manson-Bahr. The Chelsea Hospital for Women will hold a course from June 8th to 27th; the Victoria Park Hospital a two weeks' course in diseases of the heart and lungs, from June 8th to 20th; and St. Peter's Hospital a course in urology from June 15th to July 11th. An intensive course in medicine, surgery, and the special departments has been arranged by the London Temperance Hospital from June 22nd to July 4th. Copies of the syllabus for the above courses may be obtained from the Secretary to the Fellowship of Medicine, No. 1, Wimpole Street, W.1.

THE Council of Epsom College is about to select candidates for a Gerald Stanley Medical Scholarship, which is open to the necessitous son of a medical man. Candidates must be fully 12 years of age, and be intended for the medical profession. The scholarship is of the value of about £130 a year, and is payable in advance to the Bursar of Epsom College. It will not be continued beyond the scholar's 17th birthday, by which time he should have passed the matriculation examination of the University of London, or its equivalent. On joining a medical school the holder of the scholarship will be required to attach himself to that of St. Bartholomew's Hospital, where, under certain conditions, a further scholarship will await him. Full particulars and forms of application can be obtained from the secretary at the office of Epsom College, 49, Bedford Square, W.C.1.

AN International Industrial Welfare Congress will be held in Flushing from June 20th to 26th. By this means it is hoped that a permanent link will be established between the countries through the formation of an international association for the study and promotion of satisfactory human relations in industry. An interim committee has drawn up a draft constitution for presentation at the Congress. Those wishing to attend are requested to send their names to the Secretariat, c/o Miss M. L. Fleddérus, Glassworks, Leerdam, Holland.

DURING the recent German elections six medical practitioners, including one woman, Dr. Moses of Berlin, were elected to the Reichstag.

A CHAIR of epidemiology is to be established at the Collège de France, with Professor H. Vincent as its first occupant.

INVITATIONS have been issued to visit the National Physical Laboratory at Teddington on the afternoon of Tuesday, June 23rd.

THE annual meeting of the French Association for the Advancement of Science will be held at Grenoble from July 17th to August 9th.

THE sixteenth Italian Congress of Hydrology, Climatology, and Physical Therapy will be held at Montecatini, under the presidency of Professor G. D. Queirolo, from July 11th to 14th. The principal subject for discussion will be the hydrological treatment of cholelithiasis. Further information can be obtained from the general secretary, Professor Carreras, Clinica Medica, Pisa.

IT is proposed to erect a monument to the late Professor Guido Banti in the University of Florence. Subscriptions should be sent to the rector of the University, Professor G. Chiarugi.

THERE are 57 lepers in Finland, mostly suffering from the maculo-anaesthetic form of the disease. They are all natives of the south-western part of the country, and the majority are being treated in the State sanatorium for lepers at Orivesi. In Sweden there were 37 lepers in 1923.

THE Institute for the Study of Tuberculosis and the Effects of High Altitudes at Davos has arranged to hold a climatological congress there next August (17th to 22nd). Particulars can be obtained from the secretary, Dr. Vogel-Eysern, Davos-Dorf, Switzerland.

ACCORDING to the *Journal of the American Medical Association*, only five of the sixty-nine cities in the United States with a population of more than 100,000 had a diphtheria mortality rate greater than 20 in 1924, as contrasted with 17 in the preceding four years' average, and thirty-seven had rates less than 10, as contrasted with 16 in 1920–23. Fourteen cities had rates under 5, while none averaged so low in 1920–23.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the BRITISH MEDICAL JOURNAL alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the BRITISH MEDICAL JOURNAL must communicate with the Financial Secretary and Business Manager, 429, Strand, W.C.2, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the JOURNAL, should be addressed to the Financial Secretary and Business Manager, 429, Strand, W.C.2.

The ***TELEPHONE NUMBER*** of the BRITISH MEDICAL JOURNAL is *MUSEUM 9864*. The telephone number of the British Medical Association remains, until further notice, *Gerrard 2630* (internal exchange).

The ***TELEGRAPHIC ADDRESSES*** are:

EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology Westcent, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westrand, London.*

MEDICAL SECRETARY, *Mediocra Westrand, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 4737 Dublin), and of the Scottish Office, 6, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 4361 Central).

QUERIES AND ANSWERS.

DR. R. M. RUSSELL (Forest Gate) writes in reply to "X" (May 9th, p. 908): With reference to the patient whose nerves are upset by thunderstorms, it would be well if he could live where thunderstorms are rare. I lived in the North of Ireland for four years and during that time there were no thunderstorms. Donaghadee is the place most free from rain there. I have read that St. Leonards-on-Sea is fairly free from thunderstorms.

RELIEF OF PAIN IN BURNS AND SCALDS.

DR. E. E. LLEWELLYN (Ramsey, Hunts) writes to express a doubt whether a remedy for burns and scalds which must be a hundred years or more old has been superseded for common use. Some ordinary whiting is mixed with fresh milk and spread on lint. It gives immediate relief in superficial lesions, and children stop crying soon after its application.

SLOW HEART.

DR. D. A. DIAS (Preston) writes: Dr. Rickard W. Lloyd may like to hear of another case of slow heart. The pulse rate of a woman aged 75, at present under my care with uraemia, was for two days 24; on one occasion the pulse and apex beat were 24 and the respirations 26 a minute. The blood pressure was (systolic) 210 mm. She improved and was removed to more comfortable quarters; her pulse is now 38 a minute, counted at different intervals of the day.

INCOME TAX.

Claim for Maintenance of Property.

"J. E. H. S." inquires what period is covered by the average expenditure on the basis of which an allowance can be claimed against the Schedule A assessment on the property concerned.

*** The five years preceding the commencement of the year for which the allowance is claimed—for example, if for the year 1924–25, then the average should be the five years to March 31st, 1924. It is not understood how the inspector of taxes can have computed this average from the receipts sent him for the five years to March 31st, 1925, unless he has assumed that no expenditure was incurred on the property in the year ended March 31st, 1920. Our correspondent might usefully send an inquiry to the inspector on the point.

Expense of Indoor Assistant.

"J. A. T." is involved in a discussion with the inspector of taxes as to the amount to be allowed as a professional expense in regard of the fact that his assistant is residing on the premises. He claims £3 3s. a week, whereas the inspector regards £1 as adequate.

*** It is impossible to suggest any figure without detailed knowledge of the facts. The amounts allowed by employers of labour would necessarily include an element representing the profit made by the person providing the board, etc., whereas "J. A. T." is entitled to deduct the actual out-of-pocket cost. This would include (1) cost of food, (2) proportion of maid's wages, representing an allowance for the time expended on the assistant's private room, (3) laundry, if provided, and (4) a proportion of general charges for rent, rates, lighting, etc.—(4) being in addition to the amount allowed in respect of the waiting-room, consulting-room, and garage. "J. A. T." may be able to arrive on these lines at a closer approximation to accuracy than £3 3s., but it certainly looks as if £1 were below the mark.

LETTERS, NOTES, ETC.

LORD LISTER AND URETHRAL SURGERY.

MR. ALBAN DORAN, F.R.C.S., who is arranging and cataloguing the historical collection of specimens in the possession of the Royal College of Surgeons of England, wishes to know where he can find a good account of the instruments for the surgery of the urethra that were devised and used by Lord Lister himself. Little, if any, note was taken of them in the articles issued in the press in his jubilee year and on his decease. The urethral calculus forceps is well known; he used it successfully on an illustrious member of the profession suffering from prostatic calculus; the metal dilators, each in itself graduated, are familiar to Lister's old pupils; they are all on view in the Museum of the College of Surgeons. There are, however, in the same collection four remarkable dilators (bearing Goodman and Shurtleef as the makers' names), the meaning of which is not self-evident. Perhaps one of your readers can explain their use, or inform the author of this note where a description can be found. Mr. Doran will be glad to receive replies, addressed to him at the Royal College of Surgeons, Lincoln's Inn Fields, W.C.2.

EARLY AMERICAN MEDICAL LITERATURE.

In anticipation of the Inter-State Post-Graduate Assembly in London, Mr. Walter G. Spencer, honorary librarian of the Royal Society of Medicine, has got together a collection of early American medical literature from the Society's library. The volumes, roughly, cover the period down to the eve of the Civil War; they include the first numbers of several American periodicals, such as the *New York Journal of Medicine*, several early works on public health, one of them, entitled *A Discourse on the Medical Police of the City of New York* (1820), by David Hosack, and a number of memoirs of medical men of distinction. One great figure represented by several volumes is Valentine Mott, the most famous American surgeon of the pre-anaesthetic period. Mr. Spencer has unearthed the number of the *American Journal of Medical Sciences* (1828) containing the account by Mott of what he calls his "Waterloo operation." This was a case in which exsection of the clavicle was successfully performed for the removal of a myeloma, which proved to be 4 in. in diameter. The patient, a youth of 19, was under the knife—without an anaesthetic, of course—for four hours, and forty ligatures were applied to the blood vessels. He regained the use of his arm before the end of a year; a note in the same journal in 1883 records his death at the age of 75, and gives particulars of the *post-mortem* dissection of the clavicular region, proving how ably Mott's daring operation had been done. There is a treatise by Mott's pupil, J. M. Carnochan, on *Congenital Dislocations of the Head of the Femur*. Another book in the collection is T. R. Beck's *Elements of Medical Jurisprudence* (1825), which went through English and Continental editions. Some of the oldest writings which Mr. Spencer has discovered are in the shape of communications by American medical men to the *Proceedings* of our own Royal Society; one of these, dated 1743, describes a case of mollities ossium, by Thomas Cadwalader of Philadelphia. America presently had its own Philosophical Society, under the presidency of Benjamin Franklin, with its *Transactions*, and in the volume of these for 1789 there is a communication on "A remarkable case of tetanos and locked jaw cured by amazing quantities of opium"; also "An enquiry into the nature, cause, and cure of the angina suffocativa or sore throat distemper." Among the pioneers whose names are recalled by this collection are Ephraim McDowell of Kentucky, described in a memoir as "the father of ovariotomy and founder of abdominal surgery," and Benjamin Rush of Philadelphia, one of the signatories of the Declaration of Independence, and a man who gained a high reputation both in civil and military medicine. A privately printed volume contains sixty letters written by Rush to his wife, describing the progress of an epidemic of yellow fever in Philadelphia in 1793. The oldest bit of writing in the collection appears to be a "Brief Rule"—but brevity was differently understood in the seventeenth century—by Thomas Thacher, pastor of Old South Church, Boston, "to guide the common people of New England how to order themselves and theirs in the small pocks and measles." By the side of this, two papers by Oliver Wendell Holmes on the contagiousness of puerperal fever, written in 1843, and reprinted a few years ago, strike a modern note; and so does T. E. Bond's *Treatise on Dental Medicine* (1852), in which he declares his conviction that the relation of the teeth and their appendages with other and even with vital parts is of sufficient importance to be carefully studied by the dentist and the physician. A remarkable work from the point of view of printing and engraving is S. G. Morton's *Crania Americana* (1839)—a comparative view of the skulls of the aboriginal nations of North and South America. For lighter reading William Gibson's *Rambles in Europe* may be recommended. Gibson was a Baltimore surgeon who had fought for the allies at Waterloo, and he had a talent for vivid description, so that his portrayal of Astley Cooper and other worthies whom he met on this side stands out in remarkable relief. One man in London with whom he was intimate was Sir Charles Bell. We hope that our American visitors will be able to spare an hour in their closely scheduled days to call at No. 1, Wimpole Street, and inspect these volumes which Mr. Spencer has brought together and catalogued with so much care.

DIPHTHERIA IN THE AGED.

DR. EDWARD M. GOLDIE (South Woodford) writes: In your issue of March 21st Dr. J. C. Muir quoted a case of diphtheria at the age of 72, and commented on the well recognized rarity of that disease anywhere near such an age. I cannot beat Dr. Muir's record, but I can claim a dead heat, for on June 3rd, 1913, I saw a gentleman aged 72 with diphtheria so well pronounced that to take a swab was an act of supererogation. I took one, however, and Klebs-Loeffler bacilli were found by Dr. Butler Harris of Loughton. The old gentleman made an excellent recovery at the isolation hospital at Waltham Cross. He lived until last March. I was told, but not on good authority, that he was then an age record for the county of Essex.

Dr. J. S. PEEBLES (M.O.H. Bridgend, Glam.) writes that in February a woman aged 77 was reported to him as suffering from diphtheria. Swabs were sent to Dr. Parry Morgan of the Cardiff and County Laboratory, who reported that Klebs-Loeffler bacilli were present.

"CENTRAL FIXATION."

MR. N. BISHOP HARMAN (London) writes: I have received the following letter from Dr. James Kerr, formerly Medical Research Officer of the London Education Committee. It may be of interest in connexion with the inquiry as to the meaning of "central fixation," on which a note was published last week (p. 994): "I fancy 'central fixation' is the catchword of a Dr. Bates of New York, who has a theory that accommodation (and myopia) are due to the *ex*ternal muscles of the eye, and has written a book and inaugurated a 'throw away your glasses' cult. Central fixation in this sense is sitting before test types with the eyes closed, I think, till you see a black spot, and then gradually all the field goes black, and on opening your eyes you see 6/6! Evidently his results are based on a few neurotic cases."

SLEEPLESSNESS.

"SCOT" writes: Dr. C. P. Symonds must have interested many by his recent article on sleeplessness (May 9th, p. 869). Victims of the trouble are specially interested. Can Dr. Symonds or others make any suggestion for the sleeplessness such as afflicts the writer, a healthy medical man of 43? He can sleep soundly from 10.30 p.m. till about 3 or 4 a.m. After this, sleep is fitful or absent. There is no indigestion. Giving up tea has resulted in a temporary, but only temporary, improvement. I believe that the late Dr. Mercier wrote a paper on this type of insomnia, but I have been able to find neither the paper nor its title. Perhaps some reader can enlighten me.

MESSRS. J. AND A. CHURCHILL inform us that they expect to publish in June an English translation of Koby's *Microscopie de l'Oeil vivant*, which was reviewed in our last issue (p. 971). The work of translation has been undertaken by Mr. Charles Goulden, ophthalmic surgeon to the London Hospital, and Mrs. C. L. Harris, clinical assistant, the Royal London Ophthalmic Hospital.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 37, 40, and 41 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 38 and 39.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 244.